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SPATIALLY AND SOCIALLY INTERRELATED PLACES

How Thessaloniki's city centre embodies multidiversity

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ABSTRACT

The report researches on the possibility of a connection between the spatial and social characteristics of two parallel and adjacent pedestrian streets located in the centre of Thessaloniki. Their interrelation is studied in the context of the city's historical evolution and transformation until today, simultaneously shaping different land use, movement and static occupation patterns, between various groups of people, locals, tourists and immigrants.

Aim of the present case study is to answer the three following interrelated research questions: Which were the circumstances that dictated the evolutionary process of the city centre and specifically the spatial transformation of Aristotelous and Dimitriou Gounari streets over time? To what degree are they both interrelated and fit into their urban context and how does this relation influence and is affected by the city's urban and social layout? What is the role of the urban environment in the formation of different occupational patterns between the study areas?

On site observations and Space Syntax methodology, morphological analysis and historic data have been used to follow the lines of enquiry structuring this paper. The findings illustrate the different spatial and social character of each area, based on its configuration within the urban fabric. Both streets embody diversity in their configurations resulting to the coexistence of different groups of people inhabiting them.

Keywords: Space Syntax, Thessaloniki, Spatial form, Immigrants.

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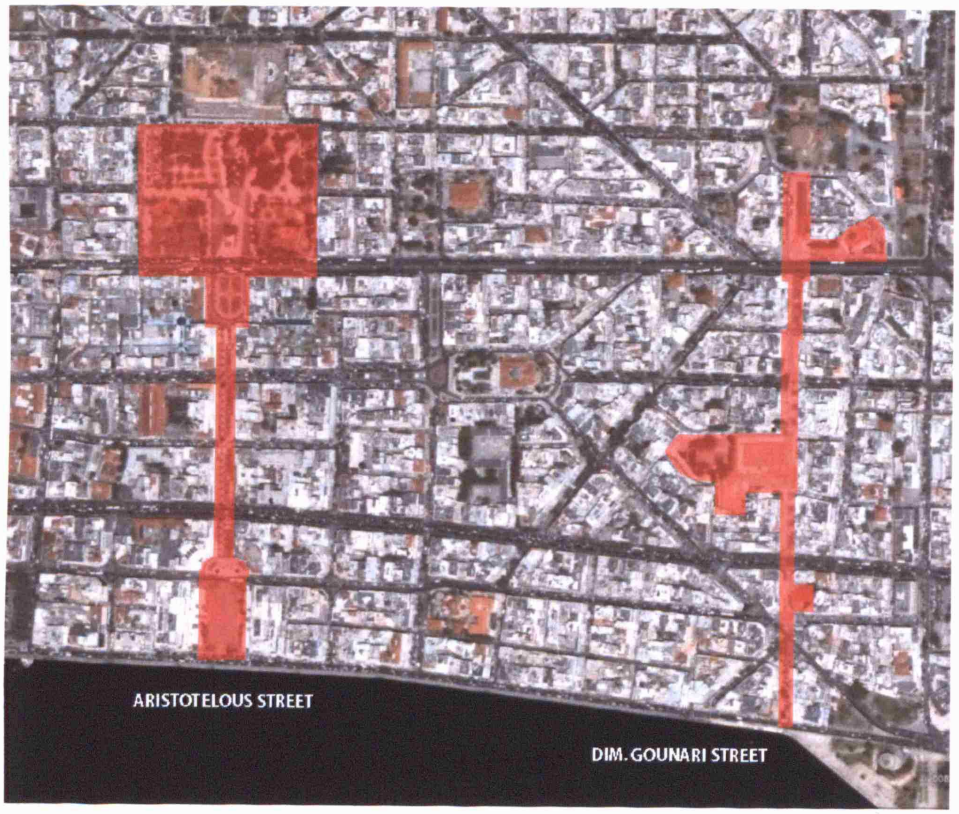
Chapter I INTRODUCTION

The present report studies the possibility of a relationship between two parallel and adjacent pedestrian streets, located in the centre of Thessaloniki, in Greece, demonstrating strikingly different spatial and socioeconomic patterns. The underlying reason for this divergence seems to stem from their process of transformation over time. Their interrelation is described and analysed in the context of the urban surroundings and social layout of the city.

Main subject of the research is the spatial and social analysis and comparison of the two streets, Aristotelous (Fig. 3-6) and Dimitriou Gounari (Dim. Gounari) (Fig. 7-11). Both of them were simultaneously planned by Hebrard after the great fire of Thessaloniki in 1917, designed as part of the whole regeneration of the burned area. Initially the study focuses in the presentation of the city's historical process and spatial transformation over time until its final present form. In this context special reference is made to the creation and evolution of the study areas, which consist of the main topic of the research. Moreover a detailed comparison is being conducted concerning their similar and different characteristics that ascribe them their different spatial and social identity. Finally, the study focuses in the concentration of locals and immigrants in specific areas of the streets, moving and occupying them while attracting further associated land use patterns and residential uses.

Fig. 1. Study areas in the context of Thessaloniki.



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The intention of this study is to answer the three following research questions: Which were the circumstances that dictated the evolutionary process of the city centre and specifically the spatial transformation of Aristotelous and Dimitriou Gounari streets over time? To what degree are they both interrelated and fit into their urban context and how does this relation influence and is affected by the city's urban and social layout? What is the role of the urban environment in the formation of different occupational patterns between the study areas?

The first question deals with the historical process the city underwent to shape its present urban spatial layout. It also describes and analyses the factors that contributed to the creation and evolution of the study areas. The second one focuses on the detailed analysis of their spatial configurations to fully comprehend their effect on movement, land use and static occupation patterns. Finally the third one explains the way the urban environment affects human interactions and encounters, and causes different behaviours between the ethnic groups.

The research is structured in six chapters starting with an introduction about the context of the study, stating the research questions and describing the outline of the report. The second one refers to the relevant literature analysing the theoretical background of the paper. It consists of ideas concerning the relationship of space and people, analyses the factors that influence the evolutionary process of the urban form over time and the effect the built environment has on people's behaviour. The third chapter presents the evolutionary process that Thessaloniki underwent from the middle ages until today. Special reference is made to both study areas to clarify the circumstances and the social factors that contributed to their initial planning.

In the fourth chapter reference is made to the research methods used to analyse the spatial and social characteristics of both streets. Specifically, detailed spatial analysis, on site observations, global and local scale syntactic analysis (axial and segment maps) and visual analysis (isovists) were the appropriated methods to complete the research. In the fifth chapter the findings of the former applied methods are analysed, illustrated and interrelated to bring to light results concerning movement, land use and occupation patterns in both areas. Finally in the sixth chapter, the conclusions concerning the interrelationship of both study areas are presented, answering the three initially stated research questions.

Chapter II LITERATURE REVIEW

The following chapter will analyse the theoretical framework within which the research will be defined. It concerns the influence of urban space on people and people on space, analyses the urban form depending on its spatial configuration and structural elements, describes the grid's effect on the city's function and evolution over time and finally refers to the spatial factors that influence immigrants' clustering within the city.

Urban space affects peoples' movement, while simultaneously other factors, such as culture, contribute to their decision taking to follow specific patterns of movement. Moudon A. (1987, p. 83) supports the fact that the variables responsible for any activity occurring in the streets are the cultural ones. Culture, according to her, is the fundamental factor that *'structures behaviour and helps explain the use or nonuse of streets and other urban spaces-or of other settings'*. She explains that the natural movement of people is determined by cultural factors since the built environment does not determine human behaviour but simultaneously states that in a way *'physical environments can be supportive or inhibiting'*. She therefore implies that people can also be affected in their movement by the built environment and especially from any complex spaces that are, according to her, *'facilitating rather than inhibiting and thus support pedestrian activities'*. Consequently it seems that urban space has an impact on people's natural movement either prohibiting either supporting in their innate impulses. These impulses are affected by each country's inherited culture and habits contributing to the differentiation of the people and their town's spatial characteristics. In particular Greece enhances peoples' interactions since space creates the potential for movement and encounters between different groups of people

Moreover concerning the influence the built environment has on people's culture and interests, Amin A. (2008) states that the urbanists have long believed that *'the physical and social dynamics of public space play a central role in the formation of publics and public culture'*. He described the urban elements of a city, such as the streets, the parks, the squares and other shared spaces as symbols of collective well-being and possibility, expressions of achievement and aspiration, sites of public encounter and formation of civic culture. All the above characteristics of the physical surroundings contribute to the formation of each person's culture. The author also insists that when we refer to a place

as being public we should reassure of it acting as a place for gathering, relaxing, learning and recreating for everybody so that interpersonal cooperation and conflict can be carried out safely. He furthermore supports the idea that once people mingle with each and come into contact the results of this interaction can not be predicted as humans are influenced by several external factors, except from the urban space. He however argues that *'the atmosphere of a public space, its aesthetics and physical architecture, its historical status and reputation, its visual cultures, subtly define performances of social life in public and meanings and intentions of urban public culture'*. According to his thoughts it is the unity of the urban space, with its peculiarities and different characteristics that structures people's culture and lives. Particularly in the case of immigrants space does affect and create their clustering and formation of smaller or larger groups. Immigrants usually feel the need to belong to a place and therefore inhabit and appropriate it in a way that does enhance these feelings. Consequently they usually cluster in central public spaces within the city, that offer them the possibility to meet, talk, interact with each other while having overall control of the space they occupy to feel safe. They generally prefer places offering a wide visual field unobstructed from buildings or other visual obstacles. That explains the fact of their intermingling in the most central and accessible areas of the cities.

Streets of vehicular or pedestrian movement consist of the main structural elements of the cities unifying different parts of them while bringing people together by easing their transfers and movement. Moudon characterises them as *'democratic'*, (1987, p. 23), that is as the ones that *'have meaning for people, invite access for all, encourage use and participation, are loved, and are well cared for by their users'*. She argues though that the use of car has affected the city's form to satisfy its needs *'the automobile split the city open at the seams, and to this day we are frantically trying to hold it together with patching on a worn-out fabric'*. The impacts of the car use are profound in today's cities, with streets being as wide as possible to satisfy the driver's needs, and to ease the traffic congestions but simultaneously creating physical barriers between adjacent neighbourhoods, and causing segregation to otherwise lively places. It is therefore obvious that streets can have either positive or negative effects, depending on their different configurational patterns, to the city's function. In some cases, areas with similar characteristics are lively and safe in comparison to others that remain unused and empty from people. Streets seem to significantly contribute to the liveliness or emptiness of various areas within a city. As

Hillier describes in his book 'Space is the Machine' (chapter four, 1996) it is the configuration of streets that contributes to the creation of multiplier effects and density patterns in the city, transforming it to a lively place. On the other hand, Vaughan, in her paper 'The spatial syntax of urban segregation' (2007) states how a network of interlinked places can be affected and even segregated due to problematic spatial relations.

A useful and effective way to create movement in the cities was achieved with the pedestrianisation of some of their streets. As Moudon states *'pedestrianisation is the strongest and most influential of the street redesign movements that have changed the public environment of many cities'*. She describes this movement as a commercialisation effort which maximises retail activity. The reason for that is to balance the movement between moving vehicles and shoppers. According to her there are examples of cities where the pedestrianisation movement has been affected by historic and preservation factors. Consequently the neighbourhood streets accommodating retail services are beforehand affected in their configurational relations by the historic urban fabric. Within that framework of preservation and replanning, land use patterns follow the initial historic plan of the city. An example of the history of *'modernist planning has been an experiment of precisely this sort, with intentions for iconic buildings, monumental art, and massive squares and boulevards, never far from the desire to foster a sense of awe, gratitude, fear or modesty among the people'* (Amin A. 2008). Usually cities with an important history respect in their future evolutionary process the former urban layout, embodying all these elements in their new form. As an effect several grid patterns appear among the cities that constitutes them unique and also influential for their further evolution and planning.

Continuing with the effects urban space has on people's interactions and movement, Dines and Cattel support that *'there is no ideal model of public open space but people will need a variety of public spaces within a local area to meet a range of everyday needs. This will include spaces to linger as well as spaces of transit; spaces that bring people together as well as spaces of retreat'* (Dines and Cattel, 2006, p.38). Their interest was concentrated in the ways space caused *'unstructured interaction between different ethnic groups'* (Dines and Cattel, 2006, p.38) while simultaneously the experience of space differed according to the age and gender of the people. As it seems physical surroundings do influence human's encounters and perception of space. As Watson explains *'on the use of allotments by older people and how these places – with their easy sociality and their*

productive capacities – demonstrate how social capital is capable of being rebuilt in urban environments. For many older people, the street is now (perceived as) a place of fear and threat whereas the allotment is one of quiet companionship' (Watson S. 2006). The same exists for the young and middle aged people who perceive space, react and behave according to their age, culture and personality. Generally the way people make use and inhabit space depends upon their individual perception of it, mostly influenced by their experience and culture.

Moreover, public encounters which are realised in the urban environment have significant results on the perception of space between humans. As Amin supports *'public spaces marked by the unfettered circulation of bodies constitute such a field of emergence, constantly producing new rhythms from the many relational possibilities. This is what gives such spaces an edgy and innovative feel, liked by some and feared by others, but still an urban resonance that people come to live'* Amin A. (2008). What is obvious is that not only does space determine people's behaviour but on the other hand the clustering of people in a space changes their perception of space. It seems that people are able to promote or prohibit further interactions between them with their social behaviour and their movement within the city.

Humans usually when moving around in new places, they structure mental maps in order to orientate themselves efficiently. They therefore classify urban spaces to different types, according to the theorists Karen Franck and Lynda Schneekloth. They both argue that *'humans do not occupy, imagine, or create an infinite variety of particular, idiosyncratic places. Instead, we structure environments by creating and using a multitude of categories of places and spaces, often called 'types'. With these types we group places that are alike together and we treat individual places as members of groups. This ordering of space into different kinds of spaces is an intrinsic and constituent part of life'* (Bentley, I., 1999, p.50). A basic classification regarding the physical environment that surrounds us could be a separation in different categories of *'a. squares, b. streets, c. parks which are made up from a. lamp posts, b. sidewalks, c. bollards (surface types)'* (Bentley, I., 1999, p.50) and a useful way of analysing urban space in different types and categories of structural elements. According to Bentley's suggestion space is easily remembered and identified in this way. Consequently people in their turn, use and appropriate these elements in various ways according to their idiosyncrasy, memory and culture.

Public spaces therefore can also be categorised according to their spatial form and their impact on people's movement as suggested by Moudon. He separates urban form in two kinds of spaces, to linear and rest ones. This separation depends on the kind of movement that the urban form creates. Specifically *'movement spaces need to be linear, narrow, and winding so that they entice with hidden views and encourage walking, strolling and sauntering; while rest spaces need to be more static and wider, frequently green, provided with sitting spaces and so on. Such spaces, whether plazas or avenues, encourage visual exploration- mainly of other people- from one place and need to act as a stage for social behaviour. It is people who become objects of interest, providing this requisite complexity levels'* (Moudon A.1987, p. 89). The specific classification in these two types of spaces is being also suggested in Hillier's Space is the Machine (1999). Hillier characterises them as *'linear and convex spaces'* correspondingly. He suggests that linearity does reinforce people's movement while convexity enables social interaction and encounter. This categorisation concerning the spatial form of the city's streets is clearly found in the present case study of Aristotelous and Dimitriou Gounari pedestrian streets of Thessaloniki. Both of them present along their length linearity and convexity in their forms in a different spatial configuration. This could explain the fact that they create and cause different kinds of social behaviour and activities along them. Spatial form seems to be of significant importance in determining people's moving and static behaviour.

Moreover space has a direct impact on the distribution of the city's land use patterns. Hillier explains that this phenomenon appears due to the structure of the urban grid. According to him it is the structure and spatial configuration of each city that determines urban movement, both pedestrian and vehicular. Hillier argues that *'this relation is fundamental and lawful, it has already been a powerful force in shaping our historically evolved cities, by its effect on land-use patterns, building densities, the mixing of uses in urban areas and the part-whole structure of the city'* (1999, p.113). In a similar way Goodall talks about the effect of urban form to land use patterns and states that *'most important for urban land-use patterns are those access links for which costs are high and increase rapidly with distance within the intra-urban range. These are, basically, contacts which involve movement of persons. Therefore activities requiring personal contacts tend to cluster in areas with superior mass transit facilities or heavy pedestrian traffic'* (Goodall, B., 1972, p.87). Moreover she supports that *'retail productivity*

is highly dependent on location. Within short distances the advantages of sites for retail use can change dramatically, not because of differences in operating costs but due to the influence of location in determining the volume of sales and often, also, the selling price of goods' (Goodall, B., 1972, p.133). Comparing both aspects it seems that it is the grid effect of a city that increases pedestrian movement and attracts more people, therefore gathering more land use patterns with mostly retail activities taking advantage of the heavy footfalls appearing in the area.

Similarly, as the retail services are attracted by certain urban forms, other types of retail are also clustering around or along these areas to take advantage of the profitable situation. Such an example are the bystanders or sellers who appear in the cities, attracted by the high movement locations, inhabiting specific places in order to attract people's attention. Moudon states that *'in city centres bystanders are often represented by commercial establishments that wish to attract customers by displaying wares along the street front or placing signs to catch the attention of passing traffic. Yet competing merchants don't want to let the traveller pause and ponder in the street space- better to get the window shopper past all other uses and directly to a particular store'* (Moudon A., 1987, p. 10). It is moreover a common situation to meet mostly immigrants in this role as they usually face various financial problems. The specific phenomenon appears also in Greece constituting it a fact in the particular streets of the present case study. Asian and African sellers disperse around areas where rates of high movement and static activity are noticed.

People's movement and interactions are determined by the configuration and size of the city's urban blocks. As Panerai supports *'the street layout determines the relationship with site, centre and capacity for extension. The width of plots (their opening on the street) and their depth condition (and are conditioned by) the type of buildings used. The regrouping of small plots or the subdivision of larger ones, when historical conditions require it, allows for the integration of new types of building. The same block can accommodate different buildings and densities* (Panerai P., p.166). Referring to the size of the urban block can sometimes help explain the liveliness or emptiness of an urban environment. As Bentley argues the difference between pre-capitalist and modern cities is the difference in the plot sizes. In the first case *'plot widths were typically narrow, so that as many plots as possible could take advantage of the accessibility offered by the network of public space; and each plot was occupied by a different building. There were*

thus frequent entrances on to public space, and also a high level of visual complexity as each building differed' (Bentley I., 1999, p.77). On the contrary in modern cities larger plots and buildings have fewer entrances, which reduce the liveliness of the public space edge. This explains the fact that modern cities present a different character compared to the past, caused by the transformation of its urban blocks over time.

Continuing with the immigrants' appropriation of space, it seems that their clustering appears in the poorer and mostly undeveloped parts of the city centre, a common phenomenon existing also in the case of Thessaloniki. Goodall explains that *'neighbourhoods, as well as buildings, become obsolescent with the resultant formation of areas of substandard or slum housing. The older the residential neighbourhood, the greater is the likelihood of this happening and, as the oldest houses are near the urban centre, this is where slums are to be found'* (Goodall, B, 1972, p.174). When talking about the poor, Goodall refers to the chronically unemployed, the unemployable and the immigrants, people who were unable to integrate themselves into the urban life of the city. Trying to describe why the immigrant population still gravitates to the urban core, he explains that it is *'the cheapest housing on offer. With the redistribution of population that has taken place within urban areas, those persons remaining at the urban centre are predominantly of low income'* (Goodall, B, 1972, p.231). Immigrants therefore seem to inhabit space according to particular existence rules that can be applied also to the case of Thessaloniki.

To conclude, it seems that urban space significantly affects people's behaviour, movement and interactions. On the other hand though, people contribute to the evolution of space with their individual decisions. This two-way relation will be examined in the context of Thessaloniki, including all the relevant parameters and effects it has on either parts.

Chapter III EVOLUTION OF THESSALONIKI OVER THE YEARS

The following chapter will analyse the historical process that Thessaloniki went through from Medieval Ages until today, in order to describe the interrelation of the studied areas in their wider context, having as a common denominator the process of time.

Thessaloniki is a sea port located in northern Greece, situated between the coasts of the Thermaik Gulf and the slopes of mountain Chortiatis uniting the hinterland to the sea. The city started evolving from the 4th century B.C., built amphitheatrically. Until the end of 19th century it consisted of various monuments, churches and old buildings that signified its conquest initially by the Romans, then, its Byzantine years and finally its dominance by the Turks for 480 years. Since the Hellenistic-Roman times and for 22 centuries, Thessaloniki was entirely surrounded by the walls in a perimeter of about 8 Km. The city was suffocating by the 1860s, because of an significant increase of its population as well as of the port and commercial activities.

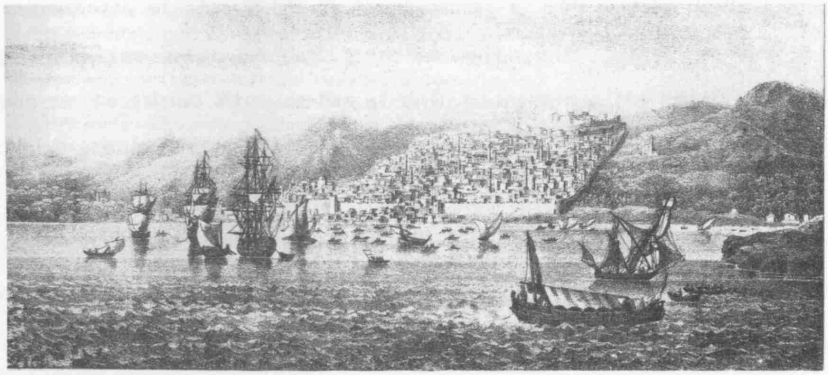

Fig. 12. Thessaloniki in 1800. Drawing by Fauvel. Source: Yerolumpos A.1996. Urban transformations in the Balkans (1820-1920).

Thessaloniki's layout was initially based on a regular orthogonal grid. Its alteration happened due to the frequent fires which by 1545s, 1610s and 1620s that devastated huge parts of the city. Yet the city started its own remodelling slowly, with its medieval framework remaining unaffected, as also did its social characteristics. *'It was a multilingual, multireligious society, organised into separate neighbourhoods and quarters, with close-knit, ethnic-religious Christian, Jewish and Muslim communities'.* (Yerolumpos A. 1996).

Specifically the Turks were concentrated at the northern part of the city, the Jews near the seafront and the Greeks dispersed all over the area and specially along Egnatia street which was parallel to the walls. The city was being divided into smaller neighbourhoods, creating a sense of insecurity to its inhabitants and resulting to a densification of its urban grid. This densification created unhealthy conditions for living and caused frequent fires that destroyed the city throughout the years.

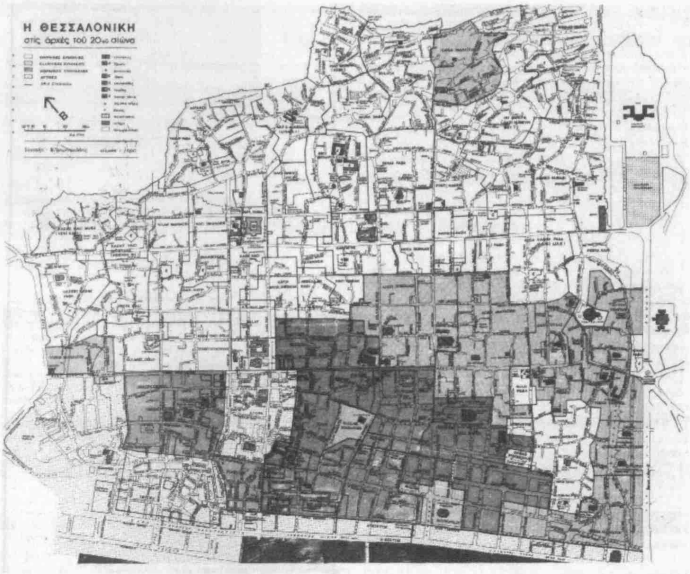

Fig. 13. Neighbourhoods of Thessaloniki at the beginning of 20th Century. White coloured are the Turkish, light grey the Greek and dark grey the Jewish ones. Source: Yerolumpos A.1995. The Reconstruction of Thessaloniki after the Fire of 1917: A Landmark in the History of the City and the Development of Greek Urban Planning.

Basic interventions were realised during 1866-1900 in specific points in the city with two of them being the linearization and creation of five basic arteries which run through the historic city centre as well as the linearization of Egnatia Street (the main street which crosses the city lengthwise) in 1868. *'It appears that Egnatia, named the 'Boulevard' by the Byzantines and the 'Broad' street by the Turks, its parallel to the north, and also the road running at right angles to the two of them, were the principal arteries of the ancient city. Thessaloniki was adorned with important civic buildings and spaces: the Forum, the Rotunda, the Arch of Gallerius, the Royal Palace'* (Yerolumpos 1995). The seaside part of the city consisted until 1890 warehouses, while the city centre was occupied by the agora and hosted banks and hotels. Cafes, hotels and new shops were created at the seaside part. In the western part of the city there was a lack of an organised plan, so during time the whole area was degraded.

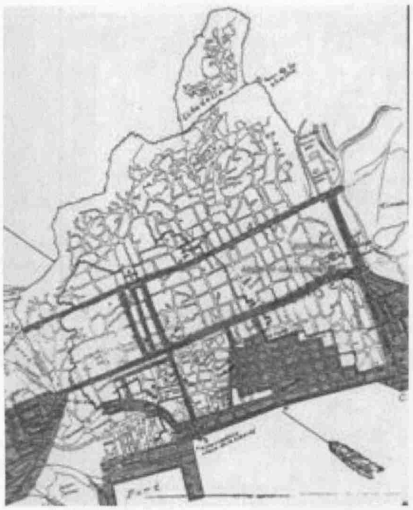

Fig. 14. The most significant urban interventions until the end of 19th century. Source: Yerolumpos A.1995. The Reconstruction of Thessaloniki after the Fire of 1917: A Landmark in the History of the City and the Development of Greek Urban Planning.

By 1890 a fire eased the urban transformation of the area to change from the neighbourhoods, as the basic organising element of the city, to one of urban blocks. This change led to the redistribution of the society, and to the housing of people depending on their economic capability. Specifically the western part attracted mostly immigrants as it served as the entry to the city. The urban intervention of 1891 concerned the creation of new road segments, design of regular urban blocks replacing the traditional organic ones and changes in the forms of the plots. The new urban grid was significantly different from the historical one. Its basic directions were parallel to the seashore and almost perpendicular to it, being interrupted from other diagonal directions.

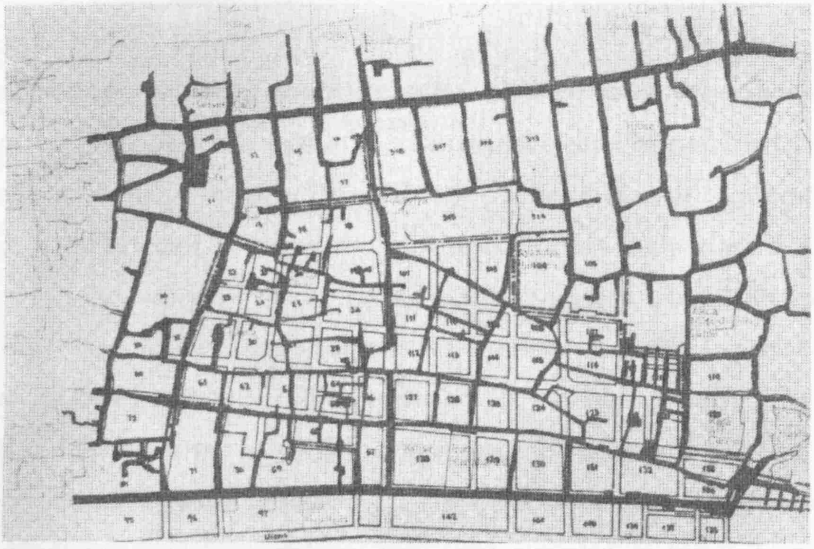

Fig. 15. Urban grid before and after the fire of 1891. Source: Yerolumpos A.1995. The Reconstruction of Thessaloniki after the Fire of 1917: A Landmark in the History of the City and the Development of Greek Urban Planning.

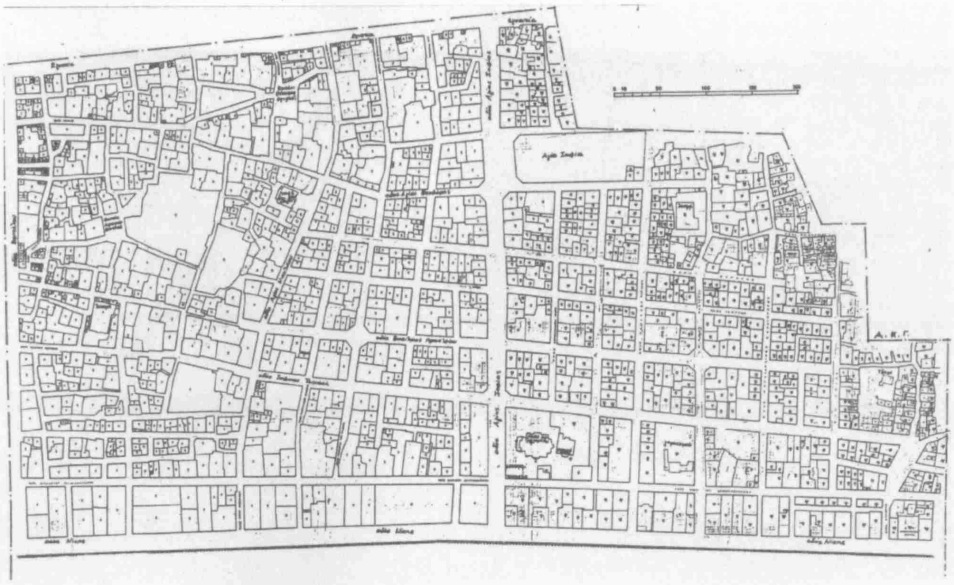

Fig. 16. The part of the city that burned down from the fire of 1890 and the replanned urban blocks. Source: Yerolumpos A.1995. The Reconstruction of Thessaloniki after the Fire of 1917: A Landmark in the History of the City and the Development of Greek Urban Planning.

During 1917 a disastrous fire broke out and the city's centre was completely destroyed with about 9500 dwellings burned down and about 70,000 inhabitants left homeless. The fire forced the government to cooperate with a commission to redesign the area. The new city plan was known as the Hebrard plan. It gave main emphasis on *'the morphology of the plan, the arrangement of the street network and the traffic, the segregation of the working class by locating it outside the central area, the use of trees along the main avenues and the distribution of green spaces in urban space, and to the satisfaction of what Hebrard conceived of as the universal needs for clean air, sun and light, as well as recreation'* (Lagopoulos A. 2004). His main goals also included well designed buildings and sustainability for the old monuments and ruins of the city. Specifically, the city was divided in three zones, the eastern, with mostly upper-middle class residents, the historic central which was the financial, social, administrative and cultural part of the city, architecturally planned with upper-middle class housing and the western one which concentrated industries, warehouses, and residences for the working class. The disorganised extension of the city towards the western side, created the situation that after the Second World War would absorb mostly immigrants and illegal residents. Land use patterns were not determined by zoning regulations; instead *'they were expected to result from fixed land values, the subdivision of building land, and the proposed building systems'* (Yerolumpos A. 1996).

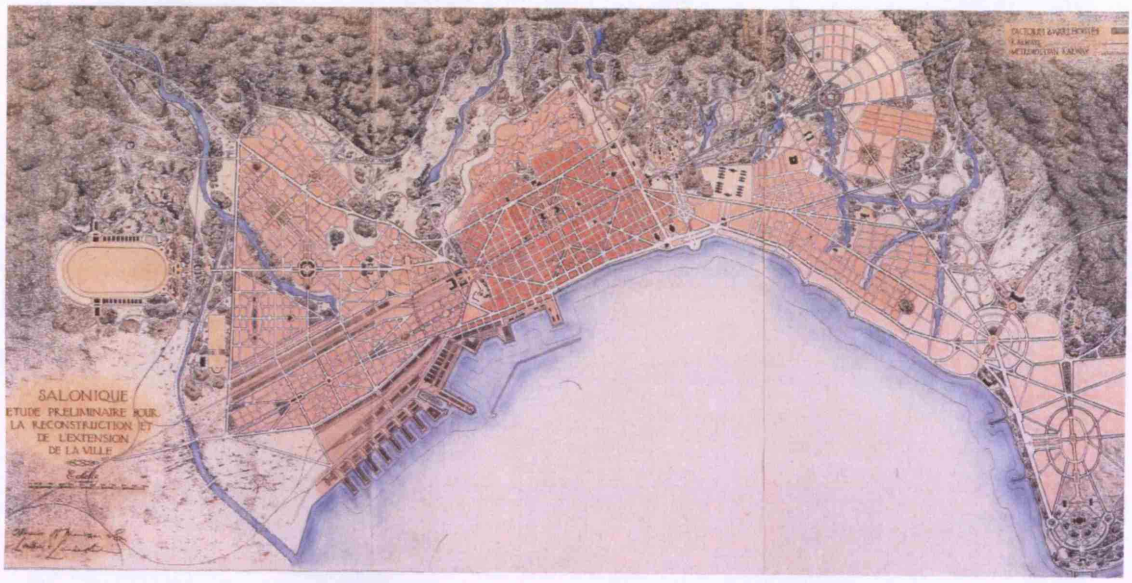

Fig. 17. Masterplan of Thessaloniki by Thomas Mawson, 1918. Source: Yerolumpos A.1996. Urban transformations in the Balkans (1820-1920).

Fig. 18. Plan of the historical centre, 1918. Source: Yerolumpos A.1996. Urban transformations in the Balkans (1820-1920).

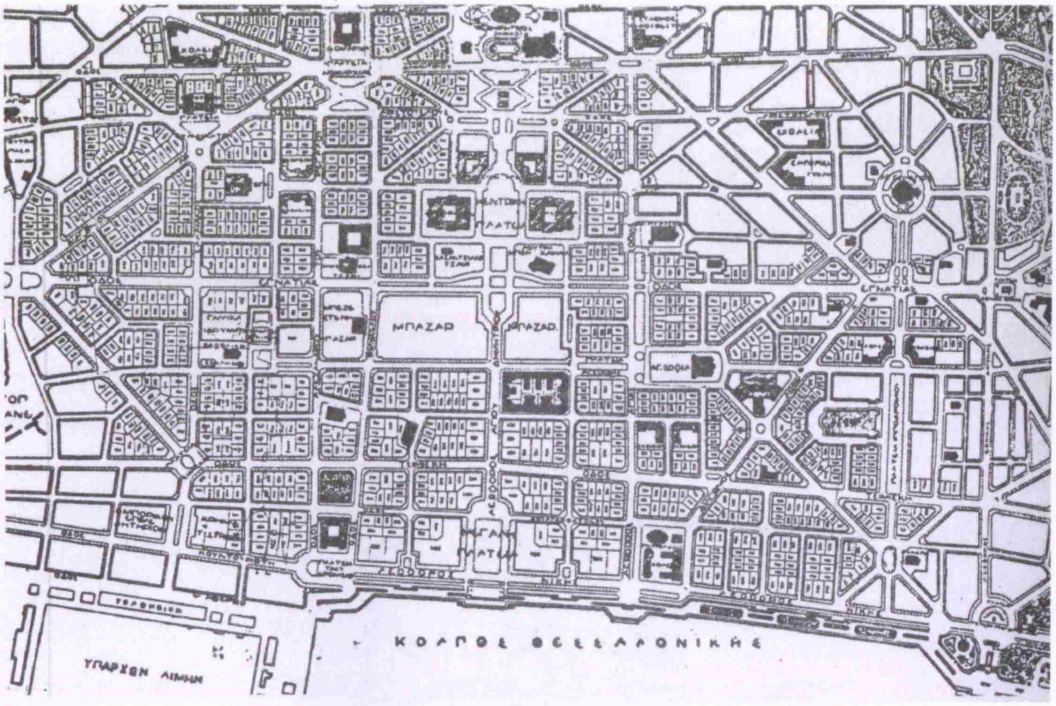

Fig. 19. Allotment of the city centre 1919 (Kitsikis). Source: Yerolumpos A.1995. The Reconstruction of Thessaloniki after the Fire of 1917: A Landmark in the History of the City and the Development of Greek Urban Planning.

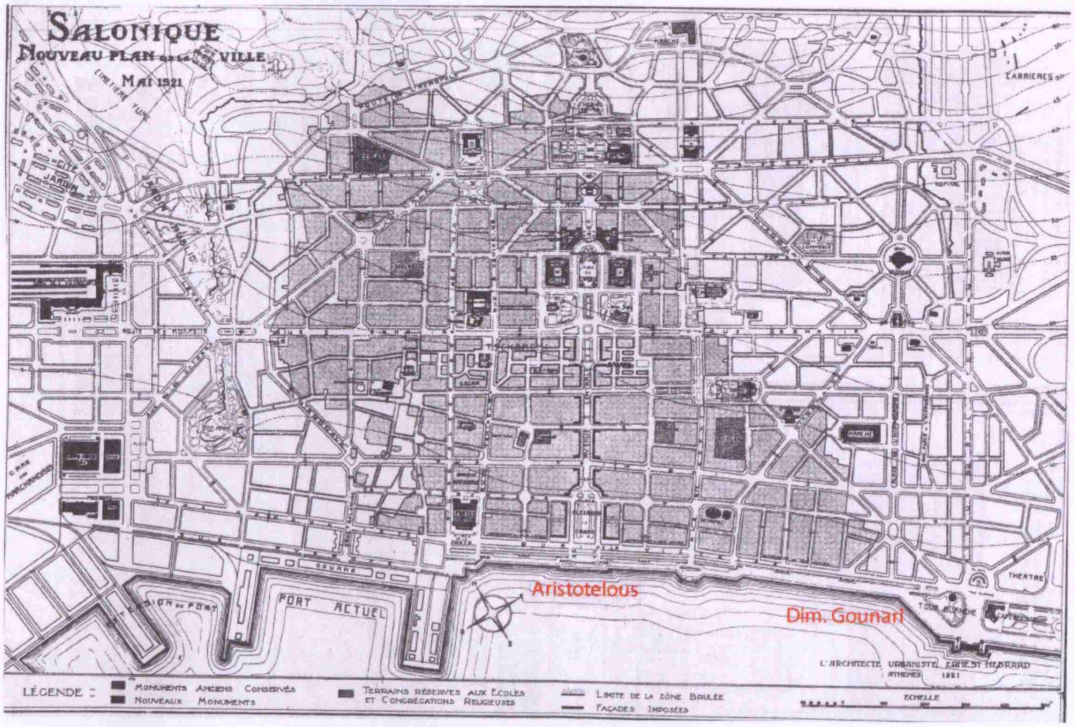

Fig. 20. The final plan of 1921. Source: Yerolumpos A.1995. The Reconstruction of Thessaloniki after the Fire of 1917: A Landmark in the History of the City and the Development of Greek Urban Planning.

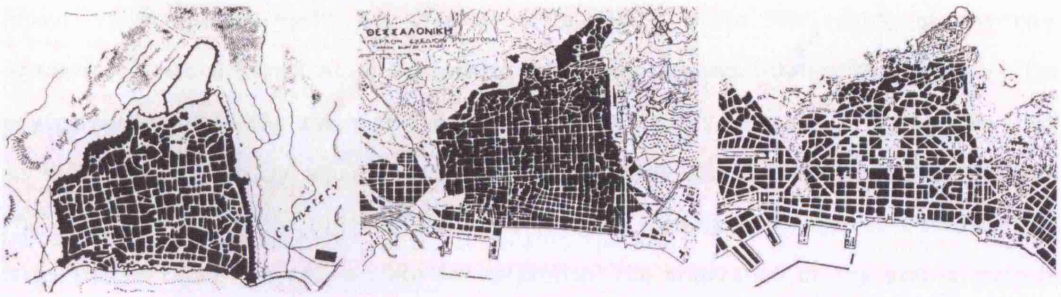

Fig. 21. Thessaloniki in 1850, 1900 and after 1917. Source: Yerolumpos A.1996. Urban transformations in the Balkans (1820-1920).

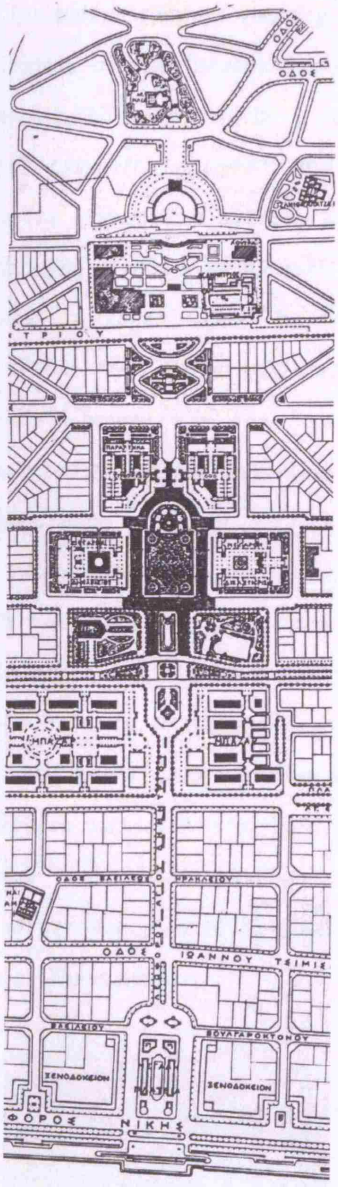

Fig. 22. Hebrard's neo-Byzantine architecture. Aristotelous street. Source: Yerolumpos A.1996. Urban transformations in the Balkans (1820-1920).

In the historical cultural pole, Hebrard's plan had no accordance to the past urban layout of Thessaloniki with the creation of a centre within the centre of the city. Aristotelous was designed as a monumental urban axis running through the middle of the city perpendicular to the seashore and surrounded by arcades. The street is not very wide, so that *'the pedestrians would be able to wander freely and especially move easily from the one sidewalk to the other'* (Yerolumpos A. 1995). The southern end of this axis is a large square facing the sea, a place for relaxation. The orientation of the axis is given in purpose to enhance monumentality, as the view of Mount Olympus can be clearly seen from that point. The axis continues north of Egnatia Street to the civic centre, and its end leads to the church of St Demetrius, the patron saint of the city. This unified urban planning was reinforced by the architectural style of the facades fronting on the street (Fig. 23,24). Panerai states that façade planning can sometimes be a result of a *'monumental system based on simple, classical figures: symmetry, alignment and façade arrangements. At times the interventions conformed to the monumental system, and the same architect was put in charge of the buildings surrounding a square or on both sides of an avenue. Their local character is shown by porches, passages under buildings, twists and turns, which separated part of their road system from the overall network'* (Panerai P., p.166). In the specific case similar characteristics appear with the facades, being initially planned by Hebrard and the Commission who proposed the neo-Byzantine style to refer to the important history of the area. The buildings have a row of arcades which are extending from the ground to the semi-first floor height (8m). They are two or three storeys high, with the first floor being decorated with balconies. The upper floor is set back in relation to the façade of the building. The buildings of Aristotelous were the last ones to be built in the burned zone. The two hemi circular buildings, on the southern square, were built in 1950s and 1960s. In 1997 the Civic Square, the biggest square of the city with two ancient monuments at each side, located on the northern part of Aristotelous was redesigned by the architect Simoni with new floor material and urban furniture. Around the same time the pedestrianisation of the whole street was planned to create an attractive focal point for the inhabitants and the tourists of Thessaloniki.

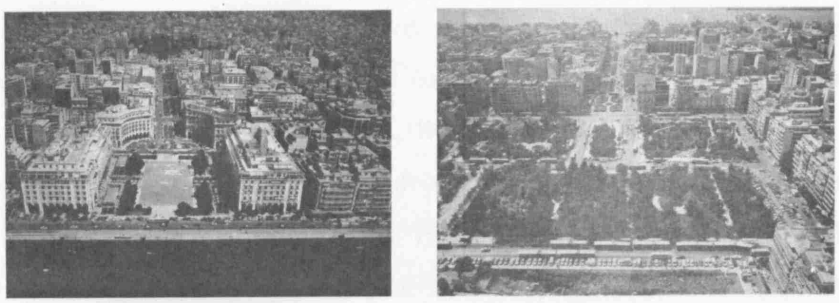

Fig. 23. Left: South square Right: North civic square of Aristotelous street. Source: Yerolumpos A.1995. The Reconstruction of Thessaloniki after the Fire of 1917: A Landmark in the History of the City and the Development of Greek Urban Planning.

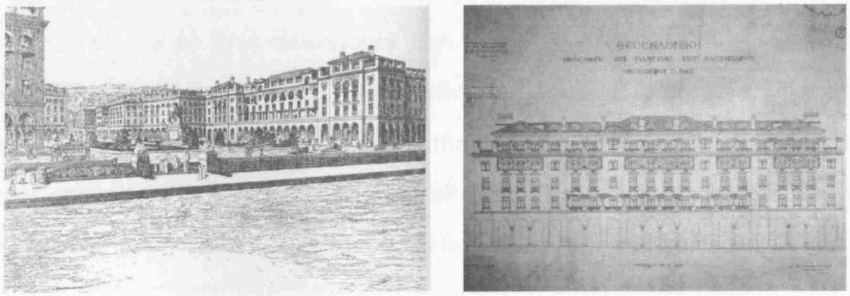

Fig. 24. Left: View of the south square Right: Architectural style of facades of Aristotelous street. Source: Yerolumpos A.1995. The Reconstruction of Thessaloniki after the Fire of 1917: A Landmark in the History of the City and the Development of Greek Urban Planning.

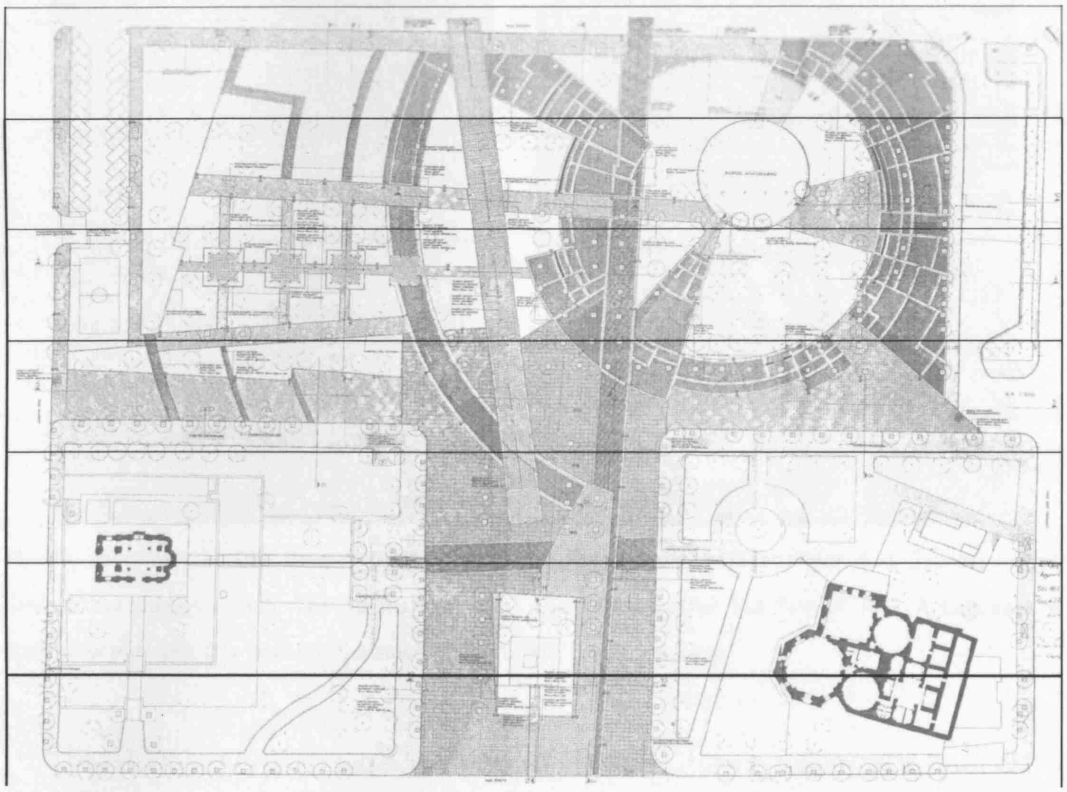

Fig. 25. Plan of the Civic Square on the northern part of Aristotelous. Source: Municipality of Thessaloniki.

Further eastwards another boulevard, planned at a right angle to the sea front, linked the Roman Rotunda with the Arch of Galerius and provided more open space to the city. A covered agora appeared in the plans (1918-1921) of the present square of Navarinou, besides Dim Gounari street. The big unified structure was never built, leaving the space free for the creation of an attractive square. The initial plan for Dim. Gounari street was conducted from Hebrard and was redesigned (plans 1918-1919), so that there would be a continuality of free open spaces around the Rotonta and Kamara. The excavation of the Byzantine Palaces and their position in accordance with the ancient Agora along Dim. Gounari street integrated the promenade in an archaeological space. The eastern part of the burned zone was the first one to have nine-storey high buildings. According to an on site research of 1981, the 86% of the buildings in the specific area were estimated to be built between 1958-1964, while only the 7% before 1950 and the rest 7% after 1965 (Yerolumpos A. 1995). Finally, the proximity of the area to the site of the future Aristotle University of Thessaloniki (1926- 1975), in its eastern part, affected further use patterns.

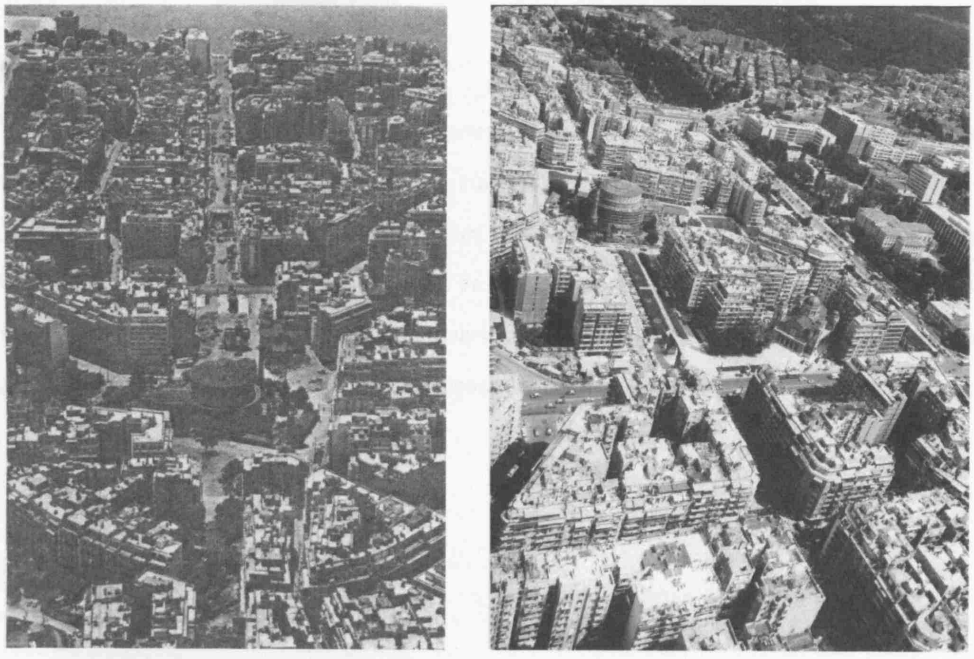

Fig. 26. Left: View of Dim. Gounari. In the foreground Rotonda can be seen Right: Dim. Gounari street. Source: Yerolumpos A.1995. The Reconstruction of Thessaloniki after the Fire of 1917: A Landmark in the History of the City and the Development of Greek Urban Planning.

As the years passed by, the height of the buildings in the city advanced, affecting the city's layout. *'Since technological limitations restricted the height of buildings, high densities could only be achieved through the development of continuous building masses, with each building in close contact both with its neighbours and with public space'* (Bentley I., 1999, p.107. Building heights depended on a law called 'antiparochi law' according to which *'any individual owner can have a developer tear down his old house and rebuild to substantially higher densities- thereby affording original owners two or three additional apartments without further expense. The result is a new city of six-to eight story apartment buildings. General planning opinion condemns the antiparochi law for allowing increased densities that erode living conditions* (Moudon A., 1987, p.232). A significant result was the further congestion of the already dense layout of the city. Moudon also stated that the specific buildings have usually accommodated immigrants due to their low cost. But this *'social mix of residents throughout the city has maintained a quality of mixed uses and a street life that have enlivened the area'* (Moudon A., 1987, p.232). Similar characteristics are met in both streets, where block sizes and building heights affected the social character of each one.

Both streets seem to have been generally defined in their spatial configurations by the location of the monuments and ancient ruins of the city. Main intention of Hebrard was to create monumental and unifying axes within the centre of Thessaloniki. The initial planning of Aristotelous street though, was defined to a greater extent, with the detailed design of its building facades compared to Dim. Gounari. The study areas were built simultaneously, around 1950s-60s, while a few spatial changes were realised along Aristotelous in the late 90s.

Chapter IV RESEARCH METHODS

This chapter introduces the research methods that were used to investigate and answer the questions set at the beginning of the paper.

The plan of the city, used for the study, was produced by the Municipality of Thessaloniki, before 2000. Therefore various differentiations appeared between the plan and the present urban observed situation. A systematic update was conducted by the researcher to complement the plans in detail, concerning the studied areas and their surrounding environment.

DETAILED SPATIAL ANALYSIS OF BOTH STUDIED AREAS

The research is initially based on the description, analysis and comparison of the spatial characteristics of the two studied areas in order to fully comprehend their interrelation concerning their spatial configurations. In order to be precise about their present layout, on site observations were conducted to update the architectural drawings in significant detail (urban furniture, trees).

ON SITE OBSERVATIONS

Direct on site observations included three different procedures in order to collect the appropriate material for the study. Gate counts[1] were conducted on the 12th and 14th of June for Dim. Gounari street and 19th and 21st for Aristotelous. Static snapshots took place on the 26th and 28th of June for Dim. Gounari while for Aristotelous on the 3rd and 5th of July. All observations took place on a weekday and a weekend. Moreover a land use survey was carried out for both areas to record ground floor uses around them and illegal commercial activities along them. The land uses were categorised to national, local and ethnic retail ones, community services, recreational facilities, vacant and ancient monuments.

[1] Gates consist of imaginary lines, drawn across specific points of the streets, while the observer counts the number of people crossing them, for a period of 5 min in each one.

The gates for Aristotelous were forty-nine and for Dim. Gounari fifty-five, including also the surrounding streets that had access to them. Observations on each gate lasted for five minutes and the hours were 12am to 2pm and 4pm to 6pm for both days. Pedestrians were categorised, for movement gate counts and static occupation, according to their gender and age, their ethnicity[2] (Greek, Russian, Albanian, Gypsy, African, and Asian) and another category for the tourists. The observations were conducted during the summer period with high temperatures of 31-37 degrees, therefore people were seeking shadowy and shaded places. Also the number of pedestrians during midday was reduced due to the hot weather. The accumulation of morning and afternoon counts though helped to eliminate this effect.

GLOBAL SCALE SYNTACTIC ANALYSIS

Space Syntax analysis is appropriated in the project to assist in the comprehension of the spatial structure, initially of the city and continuously of both studied areas. It consists of a set of techniques that measure the physical and spatial properties of cities related to peoples' activity patterns. It seems that the urban fabric of Thessaloniki was transformed through time under various processes which contributed to the creation of its present layout. This continuous historic process though was suddenly interrupted by the fire of 1917. Its historic centre thereafter was completely replanned with only few axes remaining in the same location. Two axial models of the city were finally created, the historic and the present one, to enable the comparison between them. The historic model was designed according to a map of 1917, just before the fire, and included the whole area within the walls of the city while the present map is a partial model of Thessaloniki, drawn in a perimeter of 4Km around the studied areas.

Axial analysis was used to understand and explain the various land use, movement and static occupation patterns that appear in the areas by detecting the integration core of the city (the sum of streets corresponding to the ten most integrated lines of the axial model, Hillier, 1996) and relating it to both streets. Moreover segment angular analysis was applied to the present map to illustrate in greater detail the spatial differences between both streets and analyse their urban layout.

[2] The separation of people in different groups was realised, by the observer, according to their facial and physical characteristics.

LOCAL SCALE VISUAL ANALYSIS

In order to examine the extent of visual fields pedestrians have while standing or moving within the studied areas isovists were constructed to illustrate it. In designing terms an isovist is a polygon drawn from an origin and within it intervisibility between internal points is always possible. Point isovists were constructed to show the extent of visibility from strategic points along the streets and especially from the squares, where clustering of immigrant groupings appears. Their behaviour could be attributed to the amount of visibility they acquire when occupying specific locations along both streets. As Arruda Campos states *'people tend to avoid very open spaces, looking for areas which are not either too exposed or too enclosed, favouring a combination of unobstructed views of street activity and a degree of privacy'* (Arruda Campos 1999, p.2).

LOCAL SCALE SYNTACTIC ANALYSIS

The Visibility Graph Analysis (VGA) was applied to both streets along their length to examine global and local properties of them. According to Turner (2004) VGA analysis enables both kinds of analysis based on a graph. This graph is created according to a grid of point locations applied to the whole extent of the area. Global measures include integration and are based on 'preparing shortest paths from each node, through the visibility graph, to all other nodes' (Turner, 2004, p. 14) while the local ones include controllability and 'are based on the relationships between each node and the nodes directly connected to it' (Turner, 2004, p.14). Integration of every location is a 'global' measure which according to Hillier and Hanson (1984) 'shows how deep each location is to all others'. Moreover 'a well integrated location is shallow (in terms of number of steps) to all other locations while a poorly integrated location is deep with respect to the other locations' (Hillier and Hanson, 1984). Controllability signifies 'the visually dominant areas where each location is assigned an index of how much it can see' (Hillier and Hanson, 1984) and distinguishes between visually high and low locations to determine the amount of visual control people have while occupying that space.

A visibility graph analysis was finally calculated to correlate with the static occupation patterns of the locals and immigrants of the city. The limits of the model were defined to one street back from the studied areas and both Aristotelous and Dim. Gounari streets were calculated separately.

DEMOGRAPHIC ANALYSIS

A comparison between the changes in the population density around both study areas was accomplished with a map of 1994 and a present one, conducted according to the 1994 and 2008 demographic data of Thessaloniki.

Chapter V FINDINGS

The present chapter will analyse the findings and results based on the Space Syntax analysis, the detailed architectural description concerning the spatial form of the city and the on site movement, occupation and land use observations conducted.

GLOBAL SCALE SYNTACTIC ANALYSIS

Figures 27, 28 illustrate the axial global integration analysis for both the historic and the present urban fabric of the city. *'An axial map is defined as the least set of straight lines which passes through each convex space and makes all axial links'* (Hillier and Hanson, 1984, p.92). In both cases Egnatia street and its parallel to the north are the most integrated lines, with them being one of the few axes that have sustained their spatial configuration throughout the years. Figures 29, 30 show how the local integration radius 2, reflects in the same way the fact the Egnatia street was and still remains the most integrated route in the city. Local integration, in both the historic and the present map, highlights a few north-south integrated lines and more east-west suggesting that these are preferred for pedestrian movement. Generally though, it seems that the integration core of the city is uniformly spread over the area, making its *'structure act as a single whole'* (Peponis et.al, 1989). This phenomenon resulted from the grid structure created by Hebrard after 1917. Peponis et.al (1989) argued that *'in Thessaloniki we can talk of neither segmentation nor convergence. The main source of differentiation is the co-presence of older deformed parts within the supergrid'*. According to him *'these deformed parts are not substantial enough to constitute distinct sub-areas and their collective effect is not to regionalize the town but to act as catalysts which pull the core in all directions so as not to allow it to shrink towards its geometrical centre'*. Consequently it seems that the coexistence of older parts within the present fabric does enhance the overall coherence of the city's function.

Fig. 27. Global integration (radius n) historic axial map of Thessaloniki.

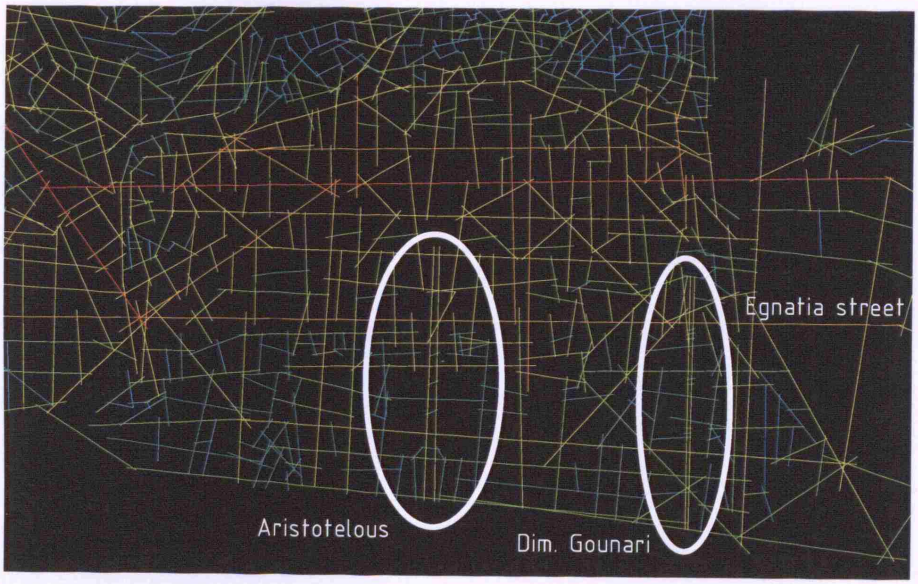

Fig. 28. Global integration (radius n) axial map of Thessaloniki.

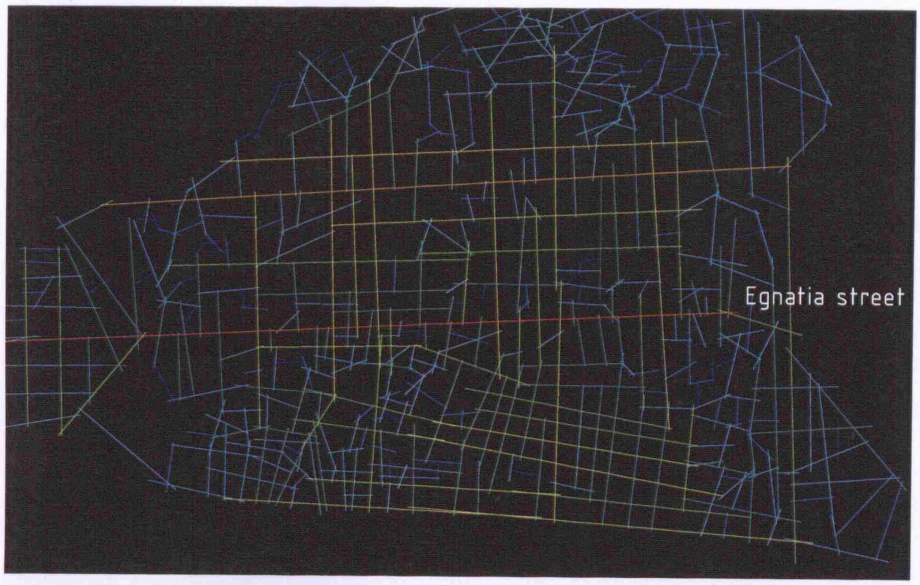

Fig. 29. Local integration (radius 2) historic axial map of Thessaloniki.

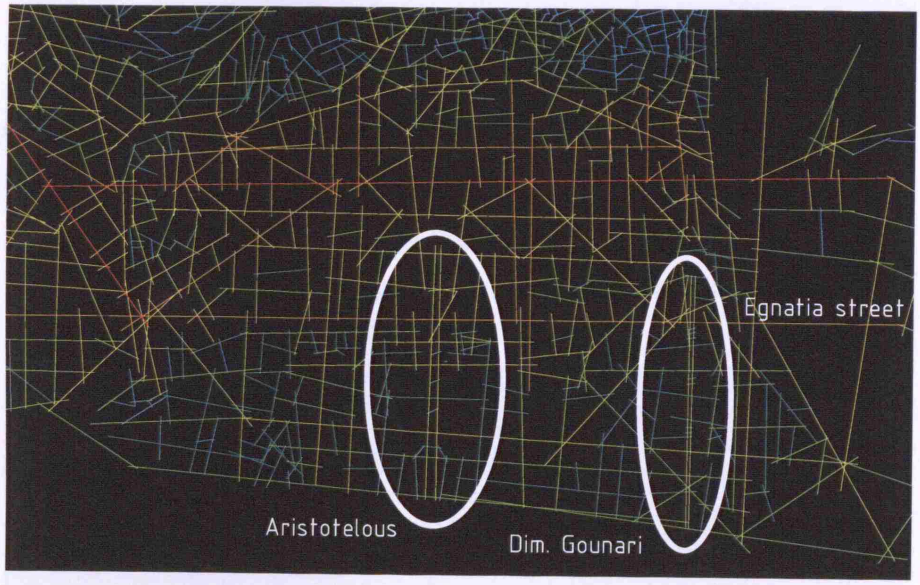

Fig. 30. Local integration (radius 2) axial map of Thessaloniki.

Once the system of a city coheres more strongly in a single whole it generates more movement than others, according to Peponis et. al (1989), because of the overlap of local and global cores. People therefore seem to interact more often with each other and conditions of encounter are created more easily. Space in this case seems to act generatively in terms of human interactions and relations. Inhabitants and tourists appropriate it in different ways while coexisting in the same area without any implications. That is what Hillier (1987) describes as a *'virtual community'*, a social phenomenon where *'people are co-present in consistent ways, over and above any individual intentions, any*

active exchange or communication and any shared membership of particular communities' (Hillier et al. 1987b). The effect of the integration of the parts into the urban fabric of Thessaloniki makes the whole layout embody both categories and relations of people, inhabitants and visitors without discriminating between them. Visitors whenever clustering in particular points of the city is whether a result of an attractive pole, such as a monument or an ancient ruin, or a facility provided by the locals, a café or restaurant.

Fig. 31. Segment analysis (radius n) of historic map of Thessaloniki.

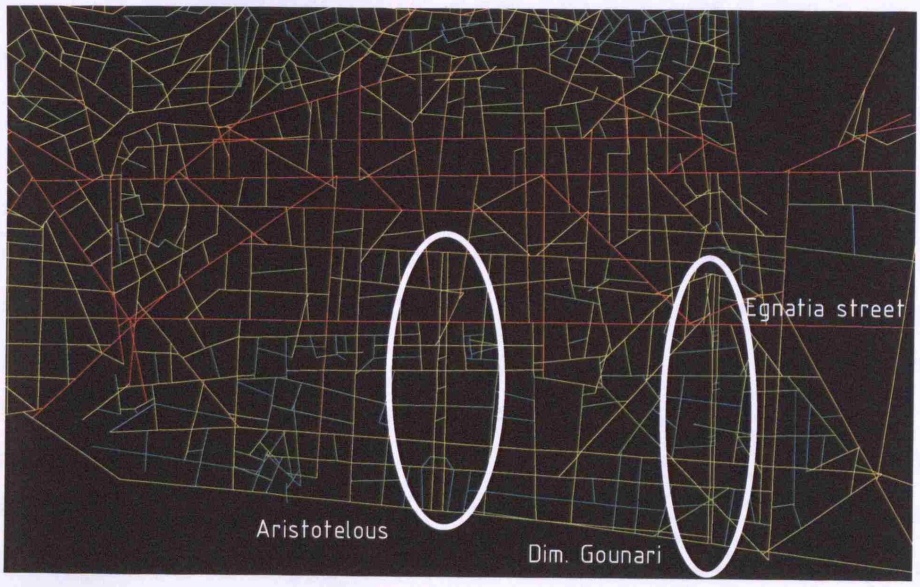

Fig. 32. Segment analysis (radius n) of contemporary map of Thessaloniki.

DETAILED SPATIAL ANALYSIS OF BOTH STUDIED AREAS

In the present phase of the research, the spatial configuration of both streets and the urban block will be analysed and described, as the latter consists of the basic unit of urban agglomerations. Through the analysis a quantifiable comparison will be made between both study areas concerning their spatial and geometrical configurations to reveal the degree of their relation. The analysis was based on the examination of the figure-ground map of Thessaloniki (Fig. 33), created in 1994, but still reflecting the present urban situation.

The map illustrates the street and block layout, the division of blocks into lots and the location of the monuments within the city. As described in the historical chapter of the study, Aristotelous and Dim. Gounari streets were both part of Hebrard's plan of the city. They were designed vertically to the seashore, constituting two of the most significant and monumental axes of Thessaloniki. Both of them are adjacent, parallel to each other and pass through a series of public spaces. Aristotelous though is wider, has a uniformity in its front facades and its buildings are smaller in height than in Dim. Gounari where the street is narrower, the facades are not uniformly planned and the buildings are higher (Fig. 36). Both streets' spatial configurations present differences concerning the location of their squares and monuments. The squares in Aristotelous are located in both ends, on the same axis with the monuments existing only in the northern part of it, while in Dim. Gounari they are intermingled with the ancient ruins and not aligned. Both axes were planned in relation to the monuments of the city, in order to create open free spaces in between and along them, leaving unobstructed views towards the Mount Olympus and the northern part of the city. Moreover their lines of sight, on their northern part, face in the case of Aristotelous an open space and at the background the underground ancient ruins while in Dim. Gounari the Arch of Gallerius and the Rotonda, two freestanding monuments (Fig. 23,26). Furthermore, and according to Hillier *'symbolic axiality which prevails where bureaucracies or religious hierarchies, with their primary concern for symbolic expression rather than movement and communication, are the dominant forces shaping space, that is, where the needs of social reproduction are dominant over the needs of social production. It is through the use of the axis as symbol that forms of social power most naturally express themselves through domination of the urban landscape'* (Hillier, 1996, p.184). In both cases the possibility that symbolic axiality prevails over the linear form of the streets constituting

them intrinsic parts of people's everyday lives while affecting patterns of movement, behaviour and physical encounter will be onwards explored.

Aristotelous and Dim. Gounari streets seem to be the result of a top-down process, due to their initial planning by Hebrard, with their spatial configurations being predetermined. The urban block is regarded as the basic constituting element of the city's layout and as the body of built and open spaces, surrounded by freely accessible public passages, influencing the visual perception of urban surroundings and spatial experience. The attempt to classify blocks, according to their quantifiable characteristics, would illustrate the urban identity of each place and the different effect each one has on people's perception of it. Siksna (1998) used three special terms for the analysis of the urban layout; *'urban fabric: the collective form of block fabrics, public streets and spaces in an area, block fabric: the collective form of buildings and spaces within a block, block structure: the arrangement of lots, circulation routes and buildings within a block'*. Following his classification, Thessaloniki's historic and present urban fabric have been previously described and analysed. Concerning its block fabric, a comparison has been made between the study areas about their building forms, density and their degree of fragmentation. Aristotelous presents mostly large and medium rectangular blocks while Dim. Gounari has medium rectangular and differently shaped ones. Moreover, as the table in Fig. 34 proves Dim. Gounari street seems to be more densely built and fragmented along its length than Aristotelous with the exception of their northern sector, where the latter shows a higher density of a 138% of building units per sq Km. Furthermore, as concerns the block structure, it seems that *'the lot patterns strongly influence the resultant block fabric because they determine the shape of individual buildings, the spaces between them, and their collective configuration'* (Siksna, 1998). In both cases the plots are laid perpendicular to the streets, but differences are detected in their sizes. The table in Fig. 37 shows that the proportions of lot sizes between the areas, is significantly varied in the northern and southern sector, with Dim. Gounari's plots being almost half the size of Aristotelous. It is likely that the above similar and different characteristics of the study areas influence, in consequence, the land use, movement and human interaction patterns significantly, which will be explored in the following section.

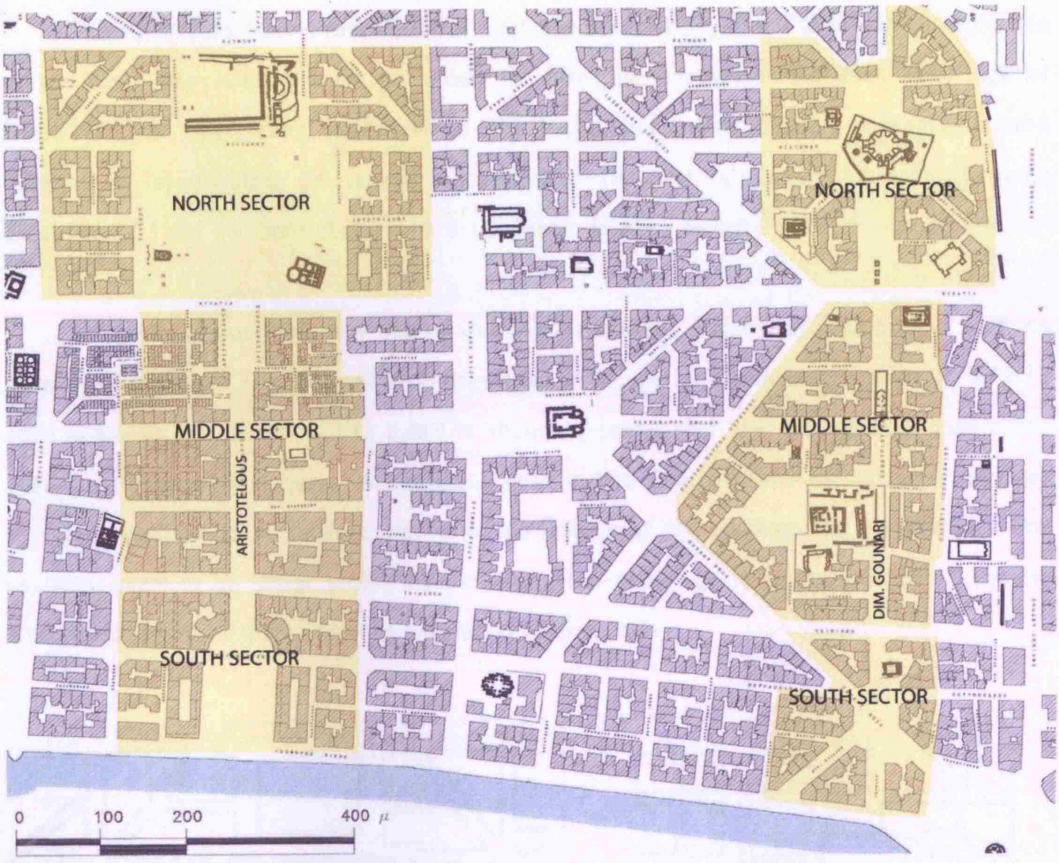

Fig. 33. Nolli map of Thessaloniki in 1994. Seperation of the study areas in 3 sectors. Source: From the personal file of Yerolumpos A.

	BUILDING UNITS/SQKM	%	URBAN BLOCKS/SQKM	%
OVERALL				
Aristotelous	2.86	85%	0.33	97%
Dim. Gounari	3.35		0.34	
NORTH SECTOR				
Aristotelous	4.15	138%	0.31	84%
Dim. Gounari	3.01		0.37	
MIDDLE SECTOR				
Aristotelous	2.05	60%	0.39	130%
Dim. Gounari	3.40		0.30	
SOUTH SECTOR				
Aristotelous	2.37	62%	0.27	69%
Dim. Gounari	3.81		0.39	

Fig. 34. Comparison of the study areas based on their building densities.

Both streets have been separated in three sectors (Fig. 33), taking into account the urban blocks surrounding them, in order to ease the comparison between their spatial characteristics. Specifically, as shown in the table above, Dim. Gounari presents a more fragmented layout along its length in comparison to Aristotelous street, with the only exception of their northern sector where the latter is more densely built.

Figure 35 illustrates the points where from detailed architectural plans and sections have been designed. The comparison is presented in Figure 36 where the relation of built to open space as well as private to public is shown. It seems that the size of free open public space is significantly larger in Aristotelous than in Dim. Gounari, with the latter's narrower axis and smaller size of squares. Moreover the heights of the buildings, as illustrated in the sections, seem to be higher in Dim. Gounari along the whole length of both streets, creating a different spatial experience while wandering around them.

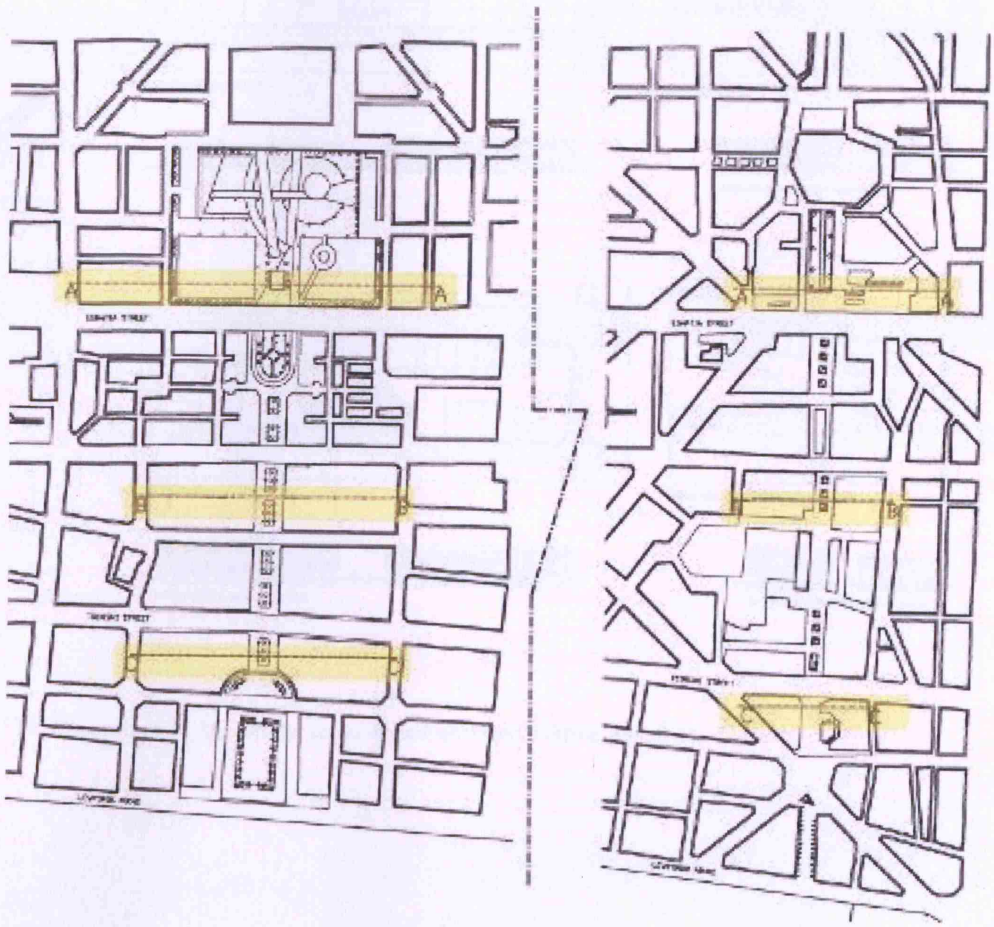

Fig. 35. Signs on the section points along both streets.

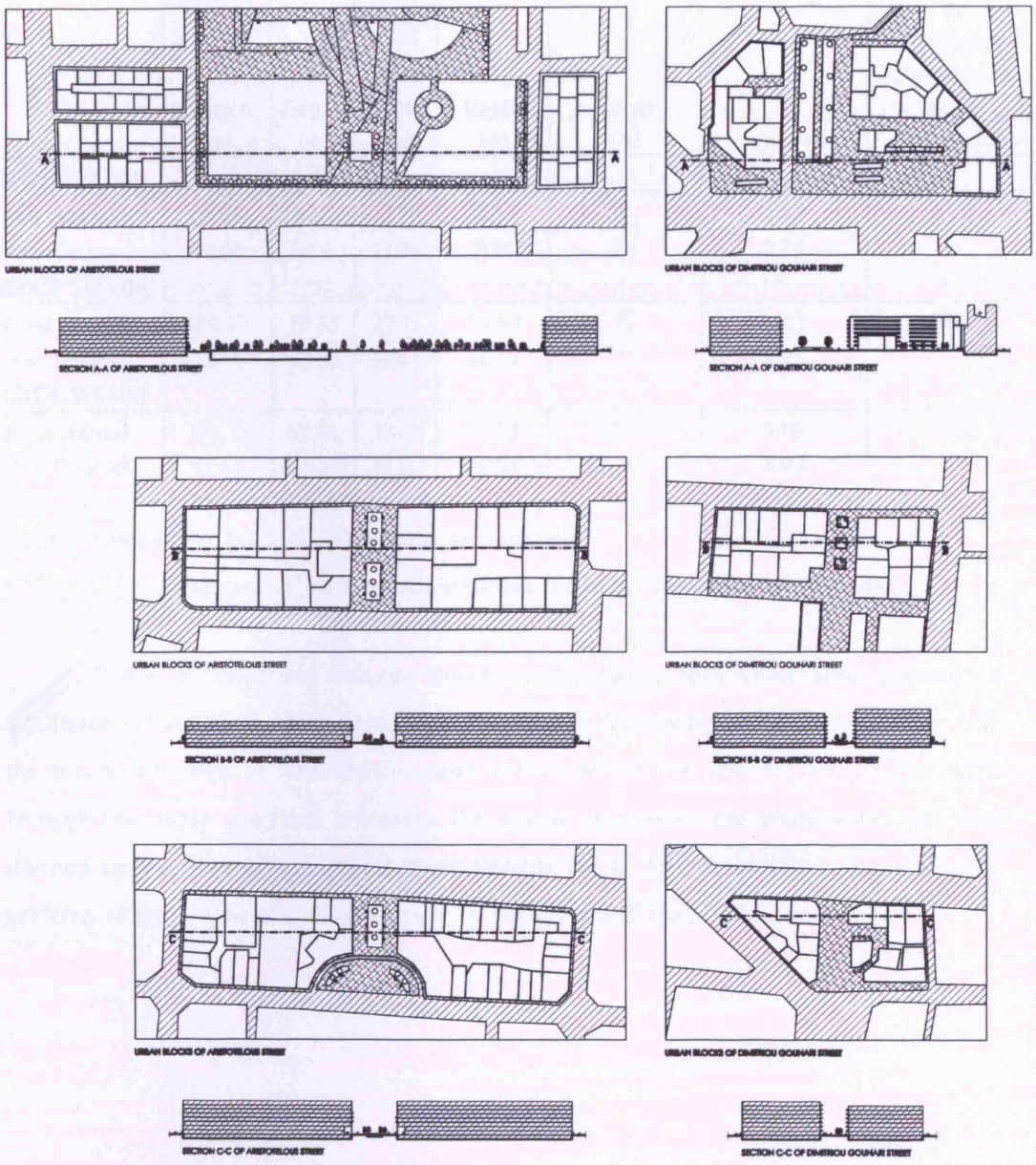

Fig. 36. Comparison of the study areas based on their building densities.

	BLOCKS		LOTS		BUILDINGS		
	Length (m)	Depth (m)	Width (m)	Depth (m)	Height (m)	Length/Width	% difference Dim.Gounari From Aristotelous
NORTH SECTOR							
Aristotelous	88.00	42.5	13.20	18.57	24	6.66	42%
Dim. Gounari	50.00	50.0	17.95	11.86	24	2.78	
MIDDLE SECTOR							
Aristotelous	120.43	70.33	27.15	34.63	15	4.43	95%
Dim. Gounari	78.16	48.97	18.47	24.14	21	4.23	
SOUTH SECTOR							
Aristotelous	120,73	63.84	12.21	23.80	24	9.88	50%
Dim. Gounari	52.66	54.71	10.56	16.51	21	4.98	

Fig. 37. Comparison of the study areas based on their size.

* Block length is regarded as the block side which has the largest number of lot frontages.

Finally, a comparison between blocks and lots along both study areas presents a significant difference in their sizes, especially in their northern and southern sectors with the blocks and lots of Aristotelous being almost double the size of Dim. Gounari ones. Through the above analytical processes the spatial relation of the study areas has been clarified to a certain extent, while further onwards the on site observations, concerning the patterns of use in the specific areas, will be described and analysed.

ON SITE OBSERVATIONS

The on site observations concerning the land use patterns, shown in Fig. 38-40, reveal the differences between the study areas. As Hillier (2000) suggests in his theory of *'the movement economy'*, *'natural movement'* is attracted by high movement dependent areas, and this in turn attracts more land use patterns causing a *'multiplier effect'*. Comparing land use patterns of the same category, it seems that Aristotelous has a higher proportion of national retail activities and community services than Dim. Gounari does, while local retail is almost proportionate in both cases. The only distinction appears in its distribution, that in Aristotelous is intermingled with other activities along the street while in Dim. Gounari is the dominant use, especially in the middle sector of the street. Ethnic retail appears with a high rate around the Civic square of Aristotelous, on the northern part of the axis; with the majority of the shops being Russian (that is why the Civic Square is also called 'the Russians' square). Recreation seems to cluster around the convex spaces of the streets, the squares, and to be the dominant activity along Dim. Gounari street. Furthermore the proportion of monuments and ancient ruins along Dim. Gounari is higher than in Aristotelous, while also their configuration in relation to the urban fabric differs, as illustrated in Fig. 40. Finally mostly offices can be found above the ground floor level in Aristotelous compared to the residences along Dim. Gounari street. According to Batty (2003) *'combination environments are transition zones or mixes of different types of environment'*, which in this case corresponds greatly to both study cases, with their uses coexisting in the same location.

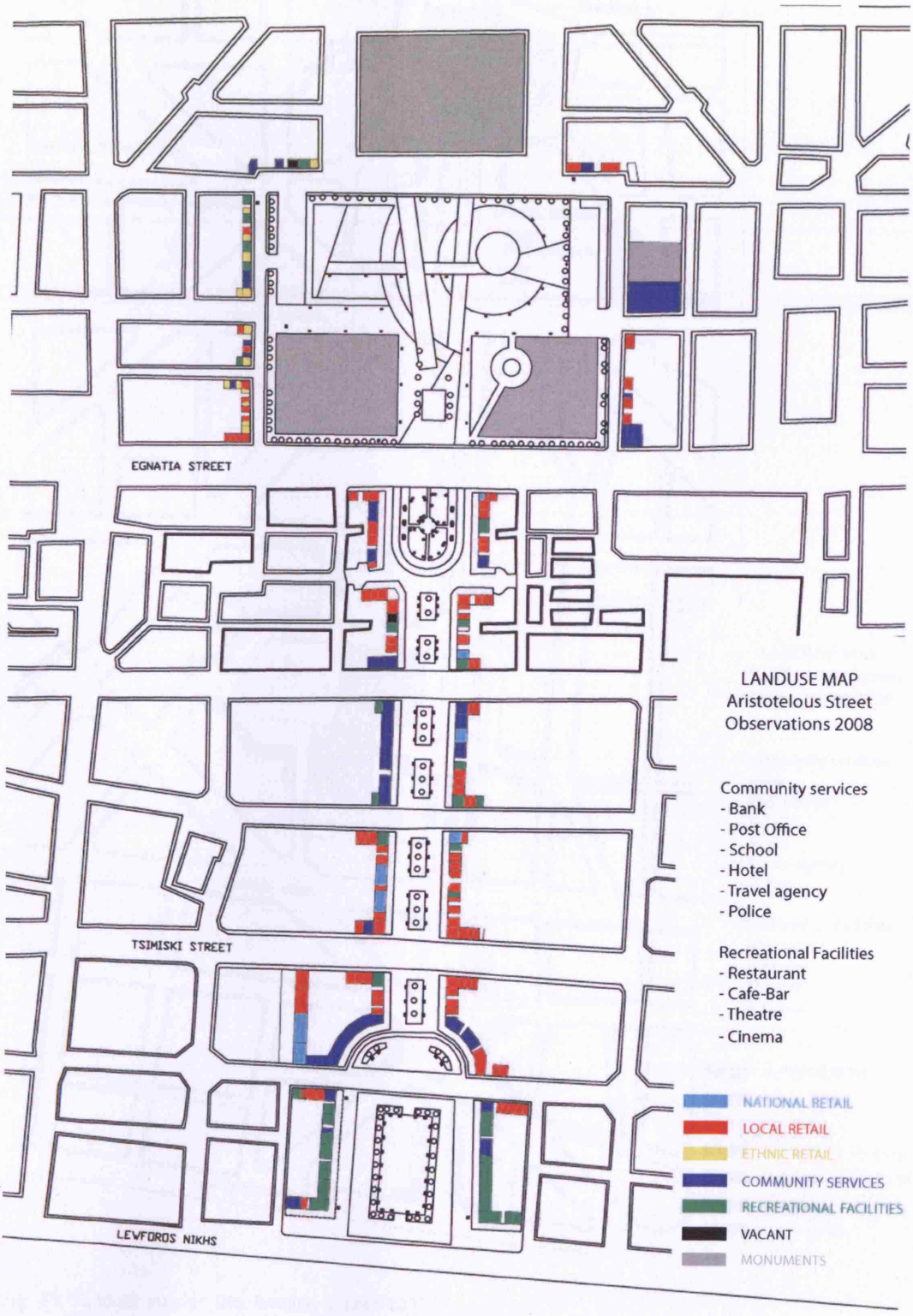

Fig. 38. Landuse map of Aristotelous street 2008.

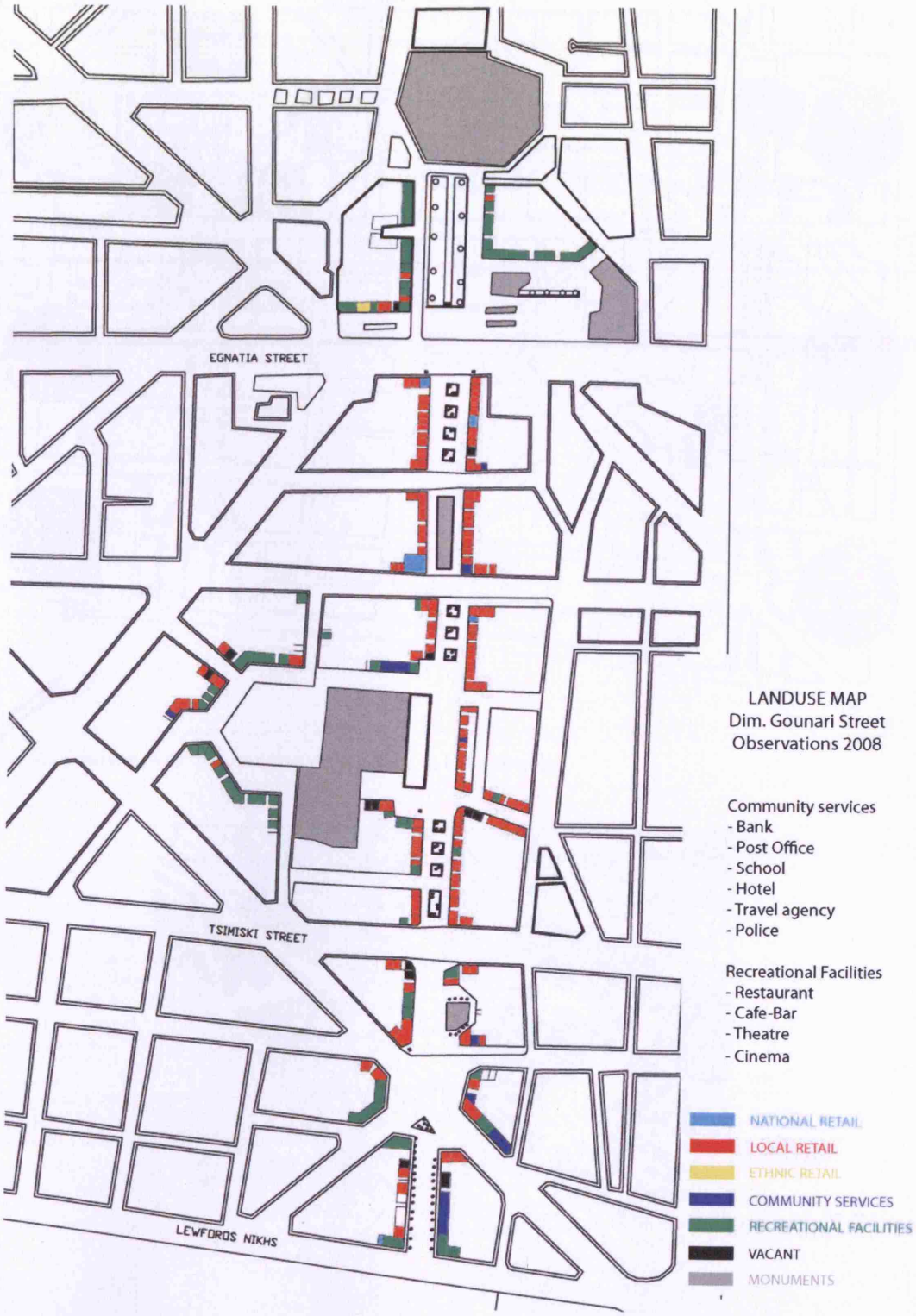

Fig. 39. Landuse map of Dim. Gounari street 2008.

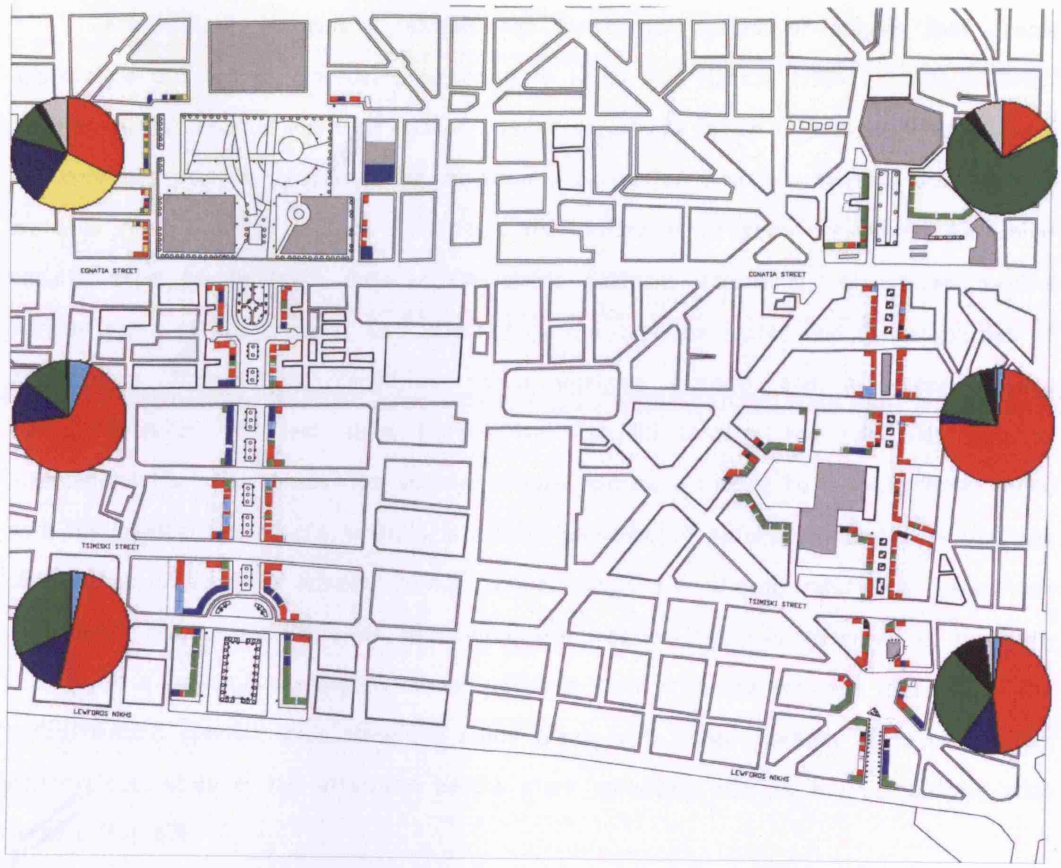

Fig. 40. Comparison of the land use distributions in both streets.

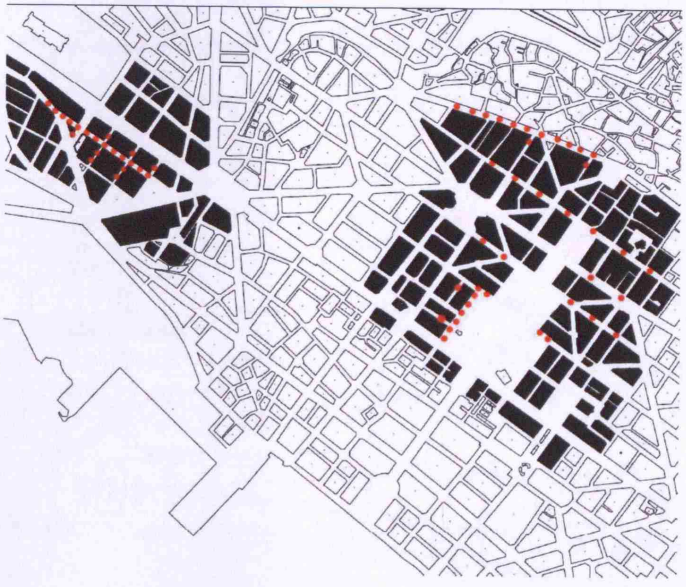

Fig. 41. Area of commercial activity of the immigrants. Source: Architectural and urban transformations in Thessaloniki due to immigration reasons, 2006.

Architecture, in general, shapes and forms the system of spaces that people appropriate and live in. Moreover, according to Hillier and Hanson (1984) *'it has a direct relation-rather than a merely symbolic one-to social life, since it provides the material preconditions for the patterns of movement, encounter and avoidance which are the material realization-as well as sometimes the generator-of social relations'*. Gatecount results seem to illustrate different movement patterns accordingly structured by the various parts of the streets, also affected by the day/time factor and the ethnicities of the people. Observations conducted on a weekday morning and afternoon showed concentration of movement along Egnatia and Tsimiski streets, the two main arteries intercepting the study areas. The specific results coincide according to Cuttini (1999a, 1999b) with the integration measure, which is *'a reliable indicator of natural movement, in that the distribution of its value appears to narrowly correspond to the distribution of pedestrian movement'*. Fig. 43 highlights as most integrated routes the ones observed in the gate counts. On a weekend morning, movement patterns shift from the previous arteries to the pedestrianised symbolic axes along the study areas, with higher numbers of people visiting Aristotelous, while in the afternoon people start spreading also to the surrounding main streets (Fig. 42).

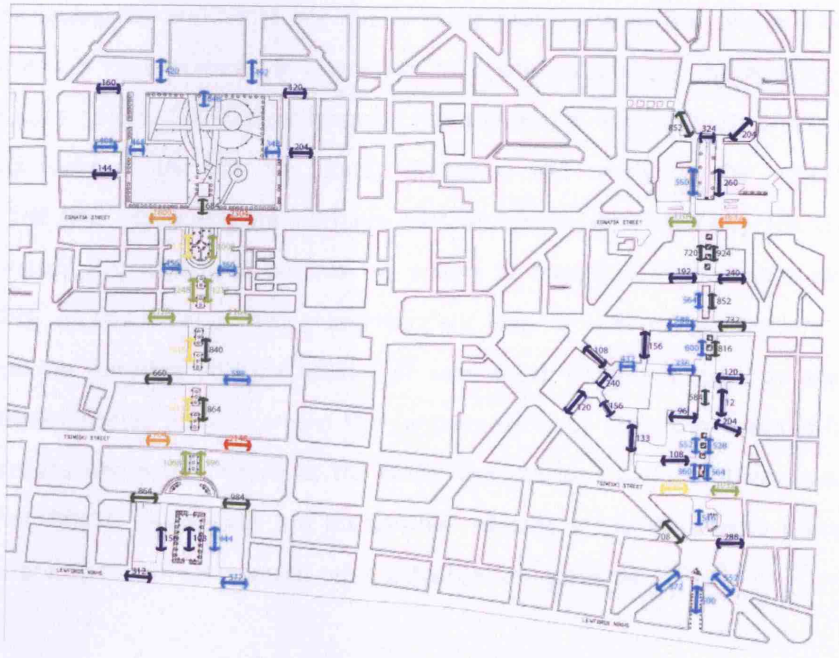

Fig. 42. Gate counts on a weekday noon.

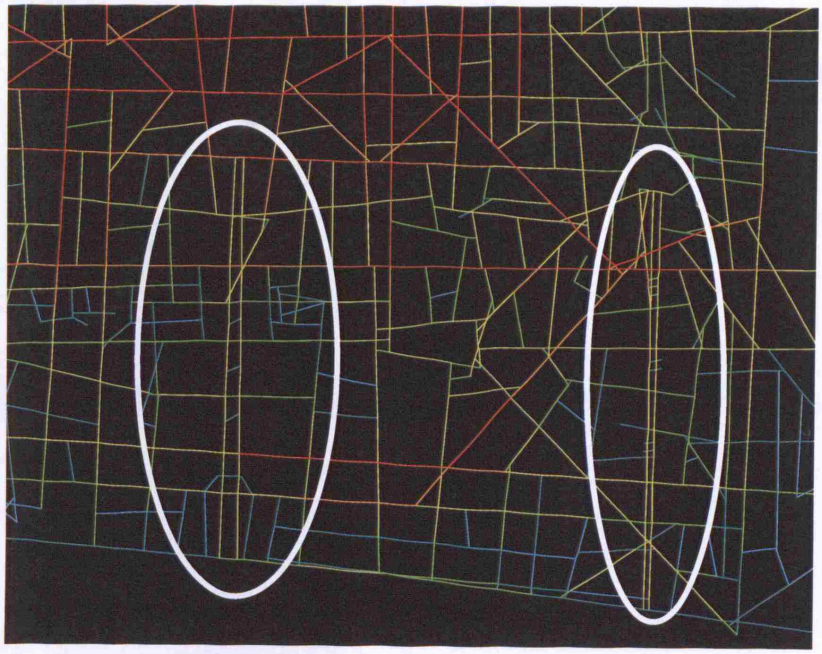

Fig. 43. Segment analysis. Node Count over Mean Depth (radius 800m).

Focusing into different categories of people, Greek individuals are the dominant group that define the 75-80% of the observed people moving around both areas, with a concentration on the southern part of Egnatia street. A differentiation though exists in the age groups among the areas that are mostly young people around Dim. Gounari, also due to the proximity to the University, in comparison to Aristotelous where the majority seems to be middle aged people. Tourists orbit around the monumental axes of both areas, where the sightseeing parts of the city are located. Russians, who constitute the largest minority group of the city, use mostly the northern part of Egnatia with especially the Civic square of Aristotelous (Fig. 44-47), as well as the square of Navarinou in the middle part of Dim. Gounari (Fig. 44,46,47). Albanians, proportionately less in numbers, appropriate the same spaces with the Russians with the addition of some parts along both axes, as shown in Fig. 44-47. Gypsies cluster as well, around the northern parts of the study areas in comparison to the Africans who gather mostly in the middle and southern parts of them, specifically in the squares. Finally, Asians, who are the smallest minority group, are mostly present in the middle sectors of the streets, where retail activities are gathered.

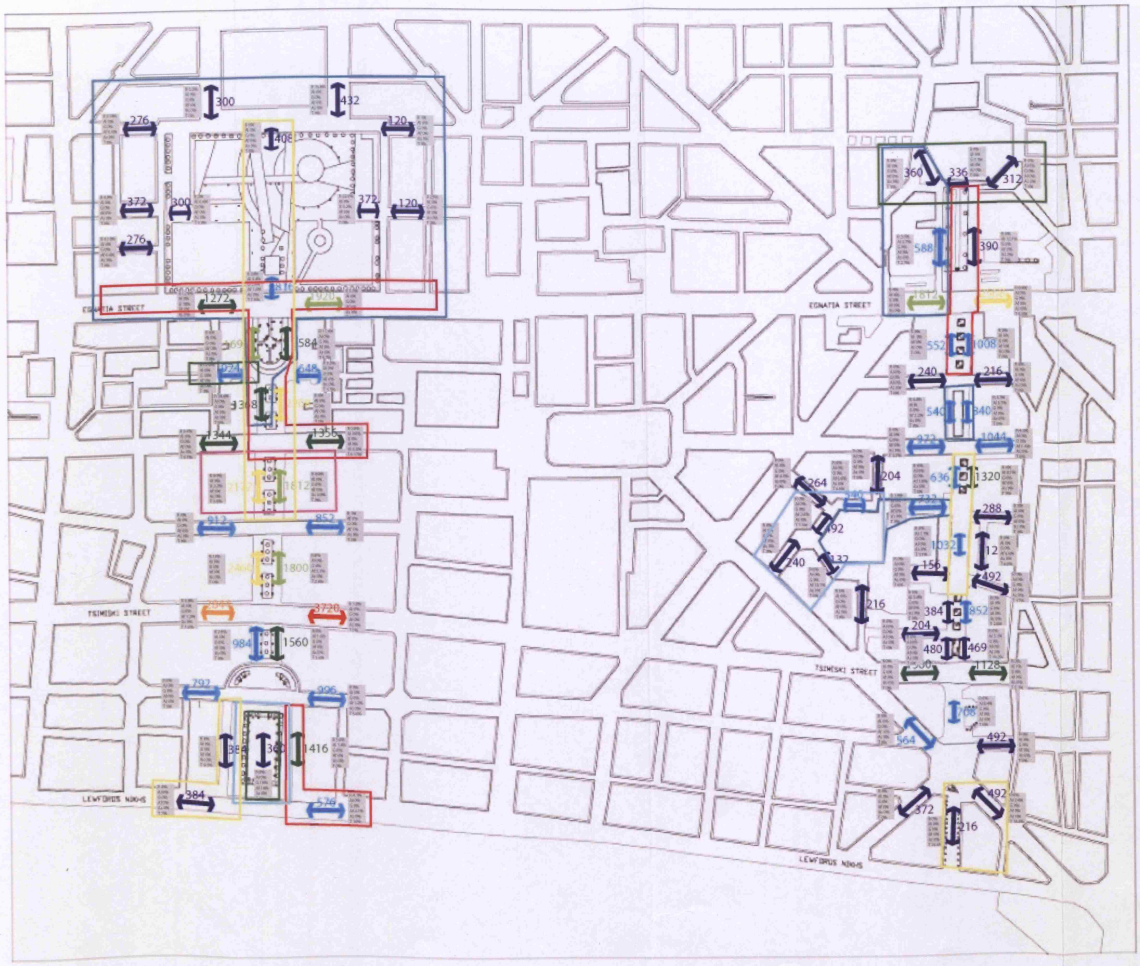

Figure 44

Gate counts on a weekday morning

Sunny weather (30-36 C)

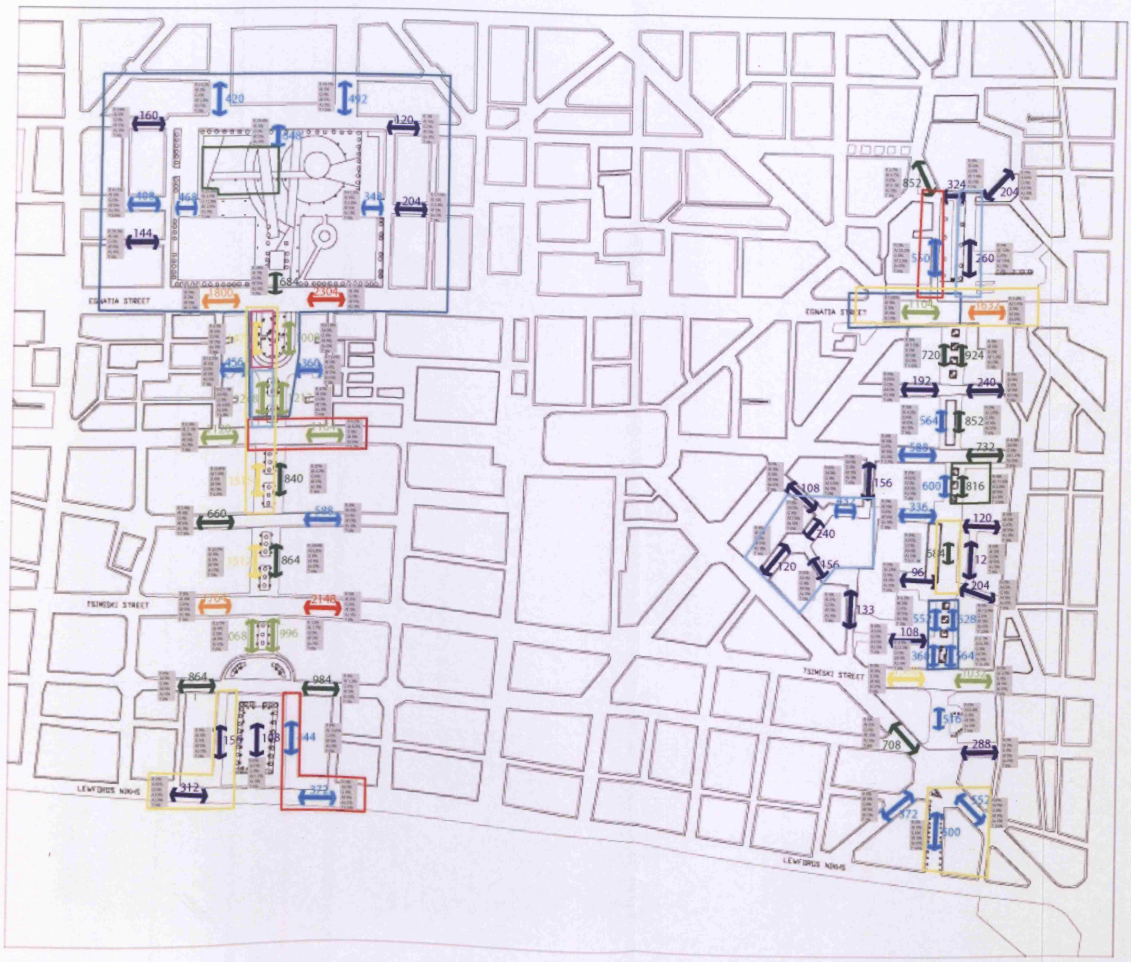

Figure 45

Gate counts on a weekday noon

Sunny weather (30-36 C)

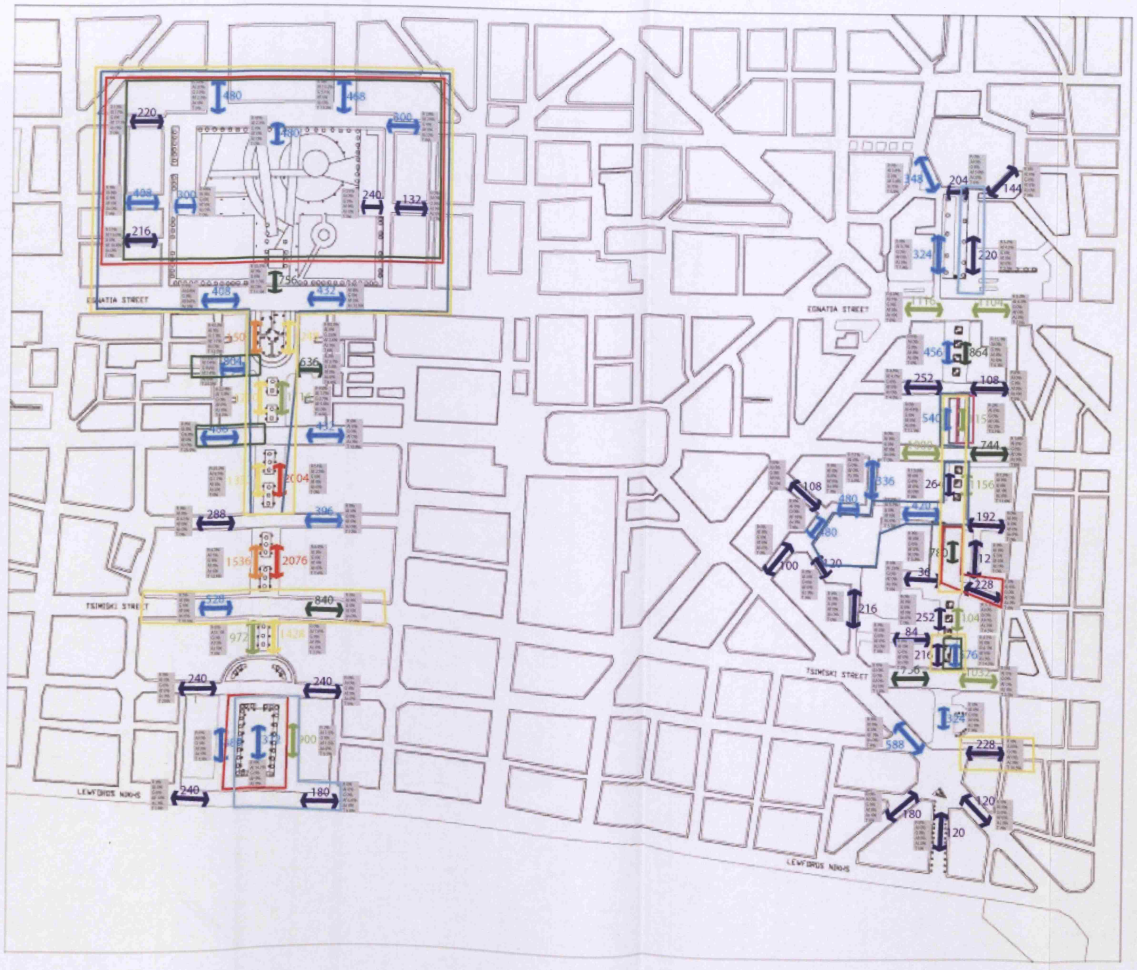

Figure 46

Gate counts on a weekend morning

Sunny weather (31-37 C)

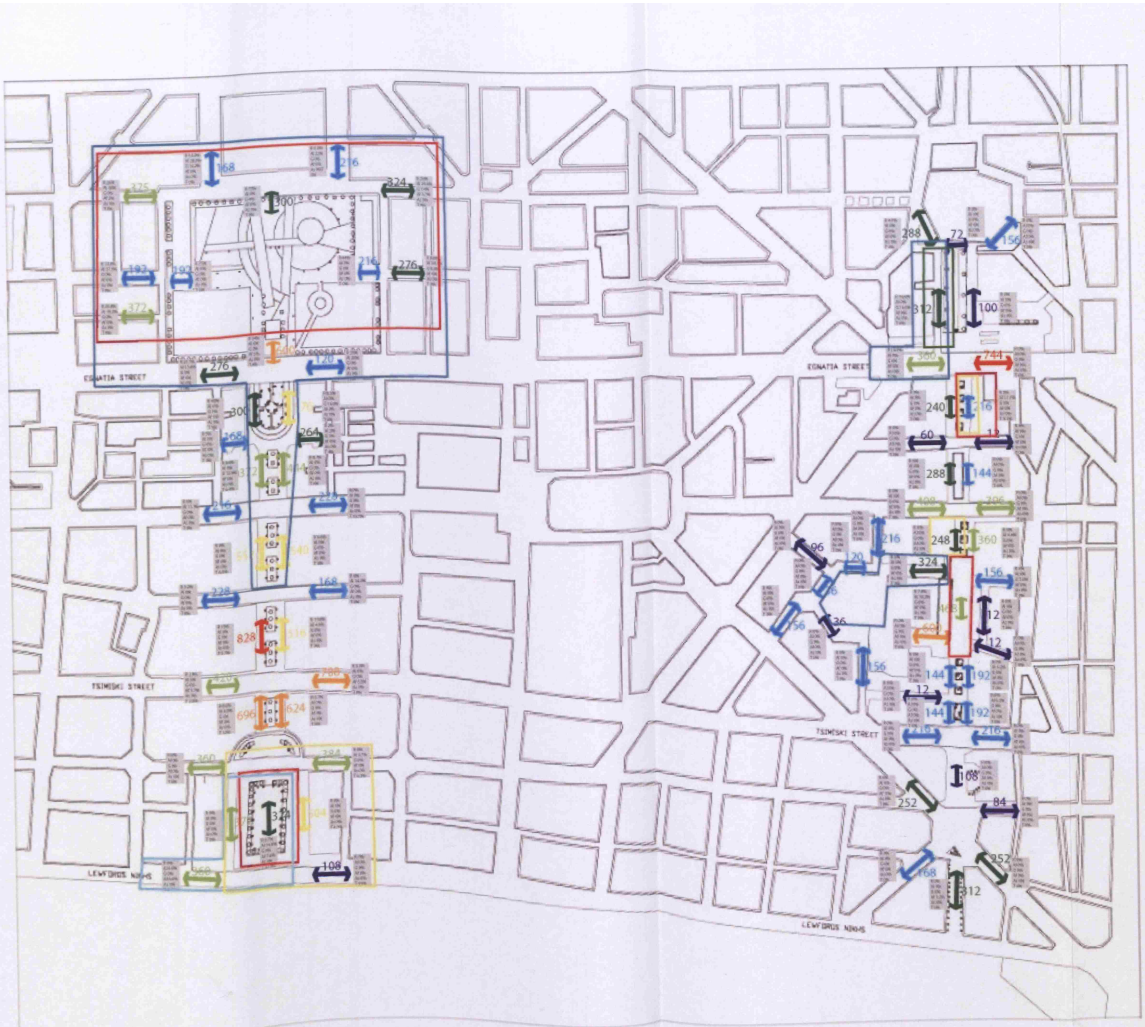

Figure 47

Gate counts on a weekend noon

Sunny weather (31-37 C)

Snapshots in both study areas illustrate different occupation patterns by its inhabitants, visitors and immigrant groups. Both on weekdays and weekends Aristotelous presents a higher density of static and moving people compared to Dim. Gounari street. Specifically, for Aristotelous, the Civic square is mostly inhabited by Russians (Fig. 48,57,58), especially men, who cluster in small groups under the trees, to talk, interact with their friends, play games, buy products from their home country, exchange information about the survival and living conditions and spend their free time. Main reason for their clustering is the appropriation of the specific part of the city, with their commercial activities and housing, due to the low cost of living and to the proximity to the city centre. As Vaughan (2006, p.2) states *'the importance of adjacency to economic active areas, particularly opportunities for casual and unskilled labour, is a factor frequently overlooked in discussions regarding dispersal of immigrants and minority groups. Immigrants are commonly unfamiliar with the language and may have inappropriate skills for the local market and thus more likely to need a flexible job market'* so *'it seems likely therefore that the location of immigrant settlement close to the economic centres of a city is vital for their successful economic integration into the host society'.* Immigrants' clustering in places adjacent to the city centre enhances their commercial activities while feeling safe in their attempt to show their national identity without any fear of discrimination. Amin supports that people should make sure that *'our urban public spaces where we all come together, remain public in the sense of providing a place for everyone to relax, learn and recreate, and open so that we have places where interpersonal and intergroup cooperation and conflict can be worked out in a safe and public forum'* (Amin, 2008). In the same way, gypsies do also gather there, to spend their time with their families compared to the Russians who prefer the company of their friends (Fig. 49). Moving southwards along the axis, movement patterns seem to dominate the area with a concentration of people in specific places, such as cafes and restaurants or even besides the green spaces along the street (Fig. 50). Ethnic groups do also appear, with Russians, Albanians moving or occupying the space and Africans or Asians selling illegal products. Gaspar (2002, p.75) supports that *'it is interesting to notice that some urban public spaces with tradition and centrality have been appropriated by immigrant populations, namely African and Asians, who thus bring life to some squares and places, often with reflections on the traditional commerce. These behaviour patterns are due to the fact that these immigrants come from areas where urbanity is still a very strong value; hence the reading they make of the city, with its central points as places for meeting and socialising'.* Squares of tradition and centrality

existing in the urban fabric of Thessaloniki, are appropriated by immigrants, confirming Gaspar's statement. In the southern square, there is a concentration of people due to the amount of recreational facilities provided with mostly locals using them (Fig. 51). Tourists on the other hand are dispersed along the axis, attracted by the historical parts of the city.

Fig. 48. Russians occupying the benches in the Civic Square.

Fig. 49. Gypsies inhabiting the green parts of the Civic Square.

Fig. 50. People moving and sitting along the axis of Aristotelous.

Fig. 51. Empty centre of the southern square of Aristotelous, benches along its edges occupied.

In Dim. Gounari snapshots showed a concentration of Greek people and a few Russians on the northern square of it, in front of the monuments, while many tourists were also present on a weekday wandering around the site (Fig. 52,59,60). The existence of recreational facilities in the area and the proximity to the university campus, on the eastern part of the street, attracts many young students who meet there to socialize and interact with each other. From the middle until the seaside part of the street (Fig. 54-56), movement is the dominant activity with the existence of mostly locals and a few Russians and Albanians. Illegal commercial activities are noticed by Africans and Asians along the place, where movement rates are high. Retail along this part shows a local character with small and cheap shops. Finally in the square of Navarinou (Fig. 53), snapshots present clustering of local young people in the cafes, around it, while Russians gather mostly in one of its corners to interact with each other and exchange illegal products or even drugs. It seems that *'fear of being assaulted or robbed, which is particularly acute for women, can be a major barrier to street use, especially at night. Drug sales commonly take place on streets and create a sense of insecurity for pedestrians. Often there is a gap between real and perceived crime that restricts a person's use of the public environment'* (Moudon A., 1987, p. 31). Similar social behaviours are sometimes met in the specific square reducing the numbers of people using and inhabiting it. Feelings of fear or anxiety lead to the abandonment and non-use of specific areas within a city, creating further problems of criminality. Illegal commercial activities are also recorded by Africans. Static occupation is generally dispersed in the squares of the street, where concentration of cafes is detected.

From the above on site observations, Thessaloniki seems to present a multicultural and multiethnic character, supporting the co-presence of locals and immigrants in the same areas. It is the spatial effect that shapes different attitudes between people, with its configurational patterns. A wide open free space with a convex[3] shape attracts movement but mostly static occupation due to its form. That could explain the concentration of different groups of people around the squares, and mostly immigrants since they are the ones who need to integrate themselves in groups and feel secure. On the other hand, both linear axes are used mostly for movement, especially by locals, who appropriate them in order to move through a series of spaces and reach their destinations. Different usage patterns are therefore significantly influenced by the spatial configuration of each place.

[3] Convex is characterised the space in which intervisibility is unobstructed and possible from all points to all others within the shape.

Fig. 52. Northern part of Dim. Gounari. Static and moving locals, tourists and immigrants.

Fig. 53. Navarinou square. Russians occupying the corners of the square, locals moving through it.

Fig. 54. Static and movement patterns along Dim. Gounari from different groups of people.

Fig. 55. Static and movement patterns along Dim. Gounari from different groups of people.

Fig. 56. Static and movement patterns along Dim. Gounari from different groups of people.

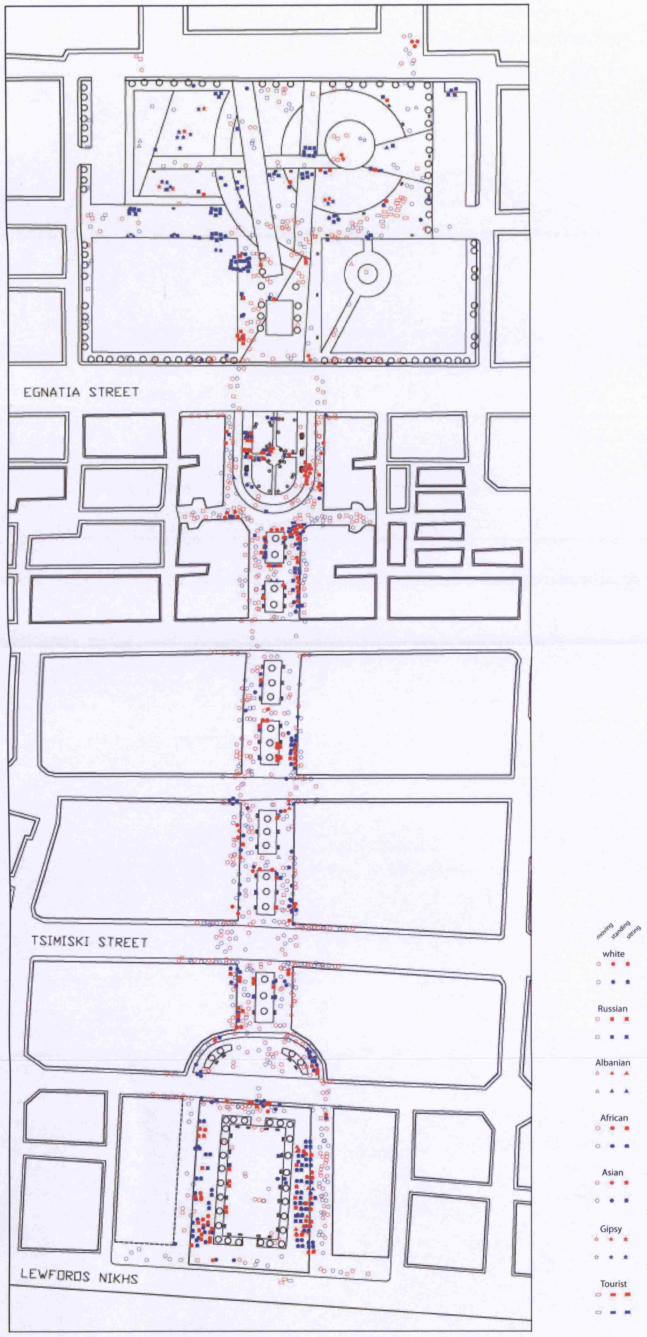

Fig. 57. Static occupation Aristotelous street on a weekday. Sunny weather (31-36C).

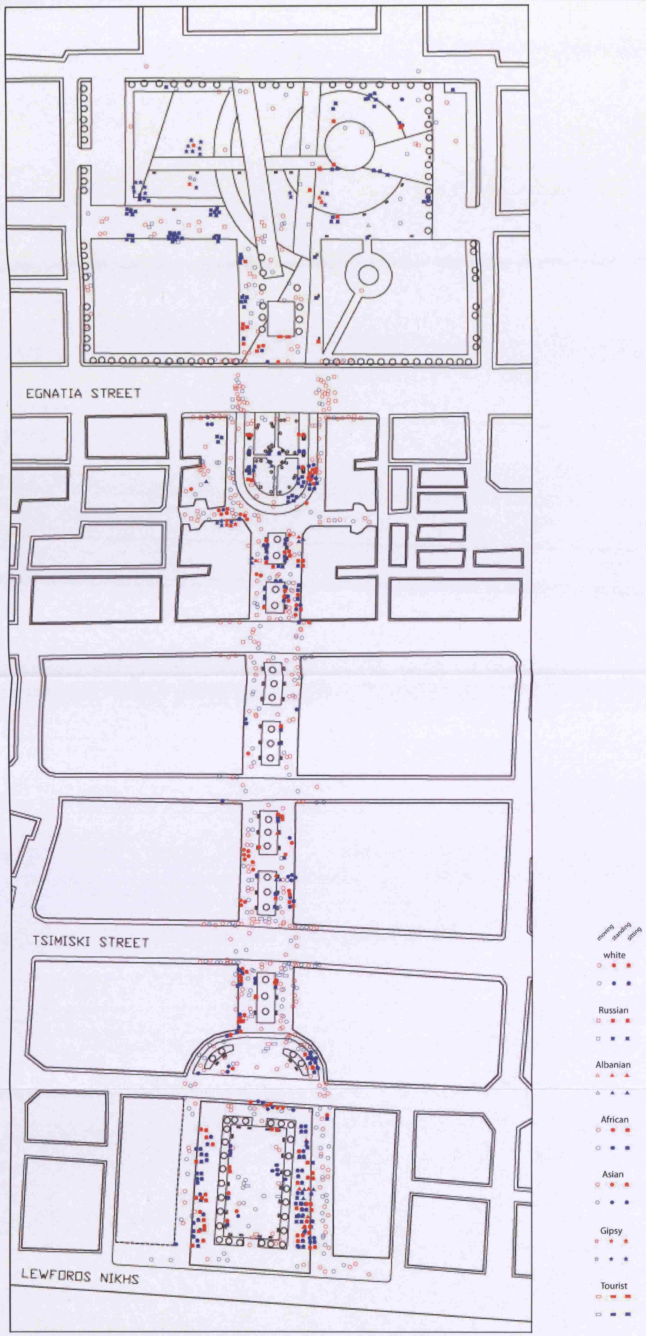

Fig. 58. Static occupation in Aristotelous street on a weekend. Sunny weather (31-38C).

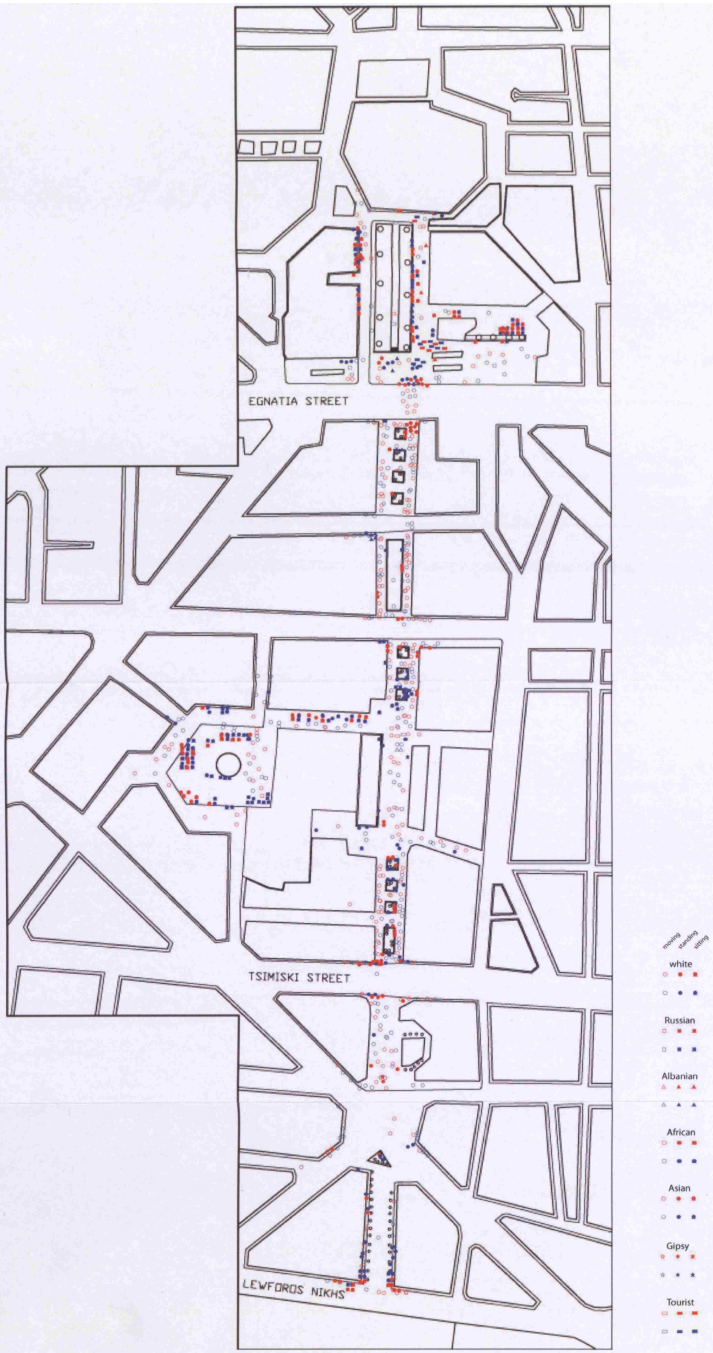

Fig. 59. Static occupation in Dim. Gounari street on a weekday. Sunny weather (31-36C).

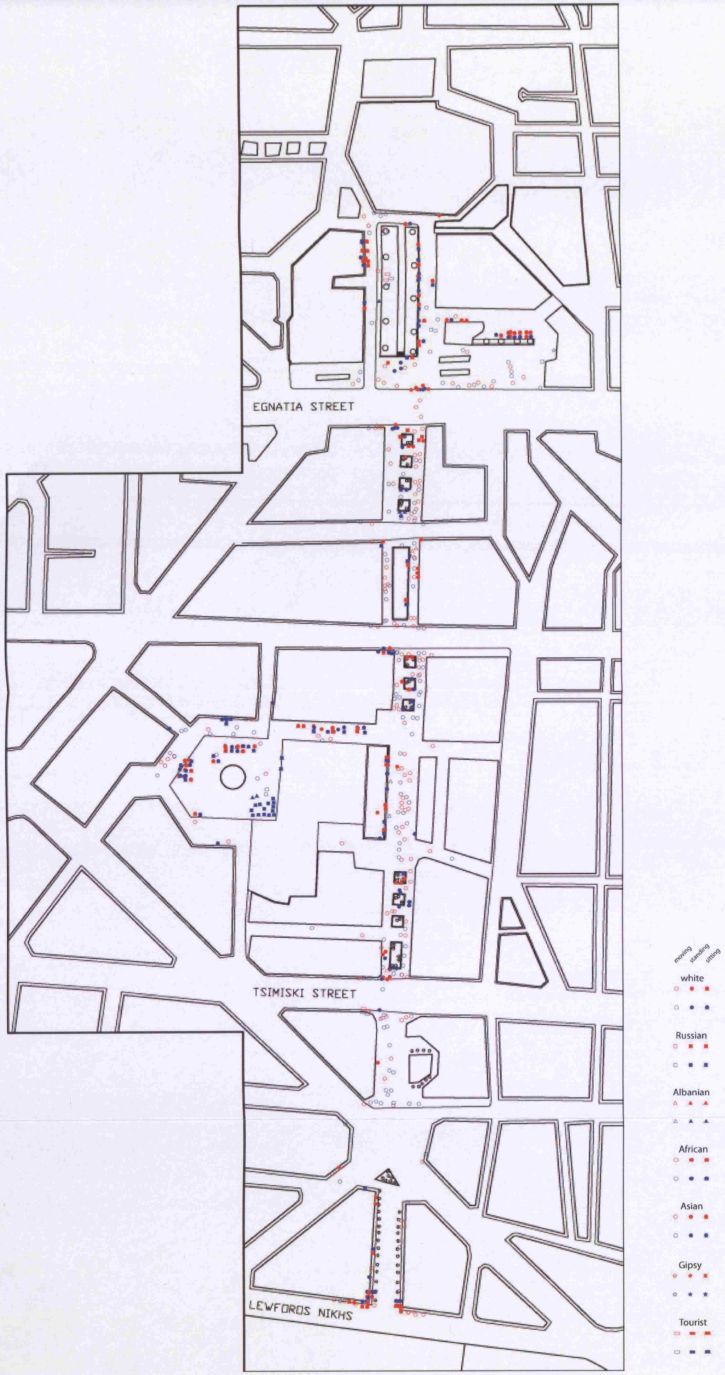

Fig. 60. Static occupation in Dim. Gounari street on a weekend. Sunny weather (31-38C).

SYNTACTIC ANALYSIS

VGA analysis was applied to Aristotelous and Dim. Gounari streets to illustrate their visual integration and controllability values. Figure 61 presents the visibility model[4] (eye level) for Aristotelous, highlighting the most integrated spaces, that is the Civic square on the northern part of the axis and the middle part of it, with the latter corresponding to the highest pedestrian movement rate during the weekend (Fig. 46). The Civic square moreover, concentrates a significant amount of people during the day, with mostly immigrants gathering around (Fig. 57,58). The southern square, near the seashore, seems to be the most segregated one. Integration value for Dim. Gounari highlights the middle part of the street connecting it to Navarinou square on its western side (Fig. 62). All the previous measures correspond to movement as well as to static occupation patterns.

Controllability reflects the degree of visual control one has over his surrounding space. The Civic square in Aristotelous presents the highest controllability values in comparison to the other two smaller squares along the axis. The middle part of Dim. Gounari street, with the exception of Navarinou and the northern square in front of Rotonda, shows high controllability values, explaining the fact that people inhabit mostly these parts of the axis. People can be easily seen simultaneously though they have control of the area they occupy, due to the wide visual fields offered by the shape and the configuration of the place.

[4] VGA (Visibility Graph Analysis) is a measure which according to Turner (2004) calculates the shortest paths from each node to all other nodes (global measure) and the relationship between each node and the nodes directly connected to it (local measure).
Eye level analysis was applied, to illustrate peoples' visual perception from all points to all others while standing or moving along the areas.

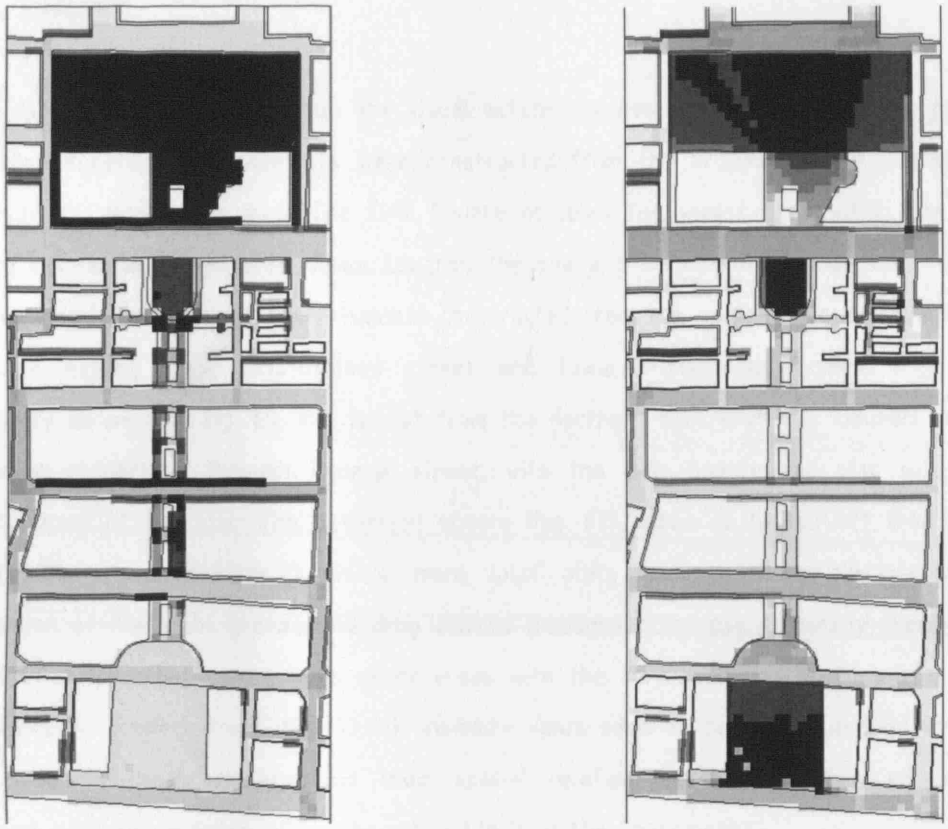

Fig. 61. VGA analysis. Integration and controllability values for Aristotelous street.

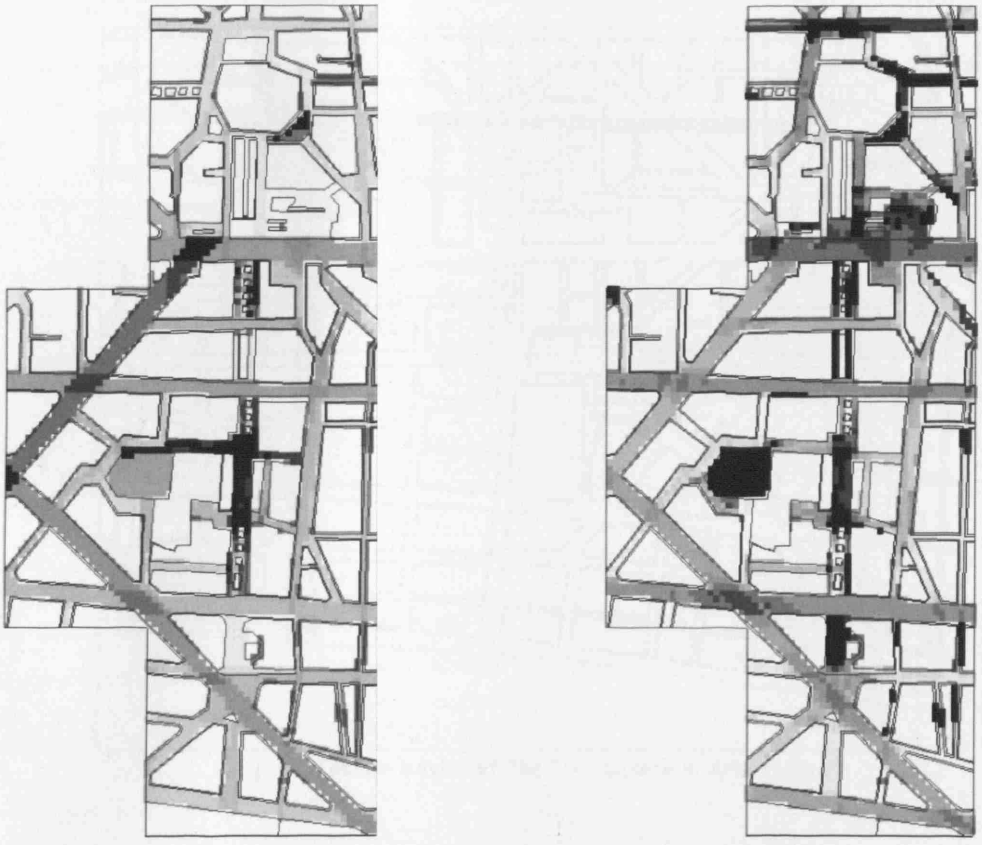

Fig. 62. VGA analysis. Integration and controllability values for Dim. Gounari street.

Isovists were used to show the visual extent one has while being in specific points along the streets. Convex isovists were constructed from the accumulation of successive point isovists along each area. The Civic Square occupies the widest area within the city offering uninterrupted visibility views towards the sea and defining its global scale within the area (Fig. 63). Correspondingly isovists constructed from the southern square illustrate the same extent along Aristotelous street and towards the Civic Square (Fig. 64). Accordingly as seen in Fig. 65, the isovist from the northern square of Dim. Gounari shows the visual connection, through Egnatia street, with the Civic Square and also with the southern part of the axis. The Navarinou square (Fig. 67) seems to be cut off from wide visibility views, constituting it as a more local place and explaining the clustering phenomenon of immigrant groups and drug addicts throughout the day. Generally there is a lack of intervisibility between both study areas with the only exception of Egnatia street that seems to connect them (Fig. 63,65). Visibility views seem to be mostly defined by the configuration of both streets and their spatial relation, constituting them either as globalised or localised areas within the urban fabric of the Thessaloniki.

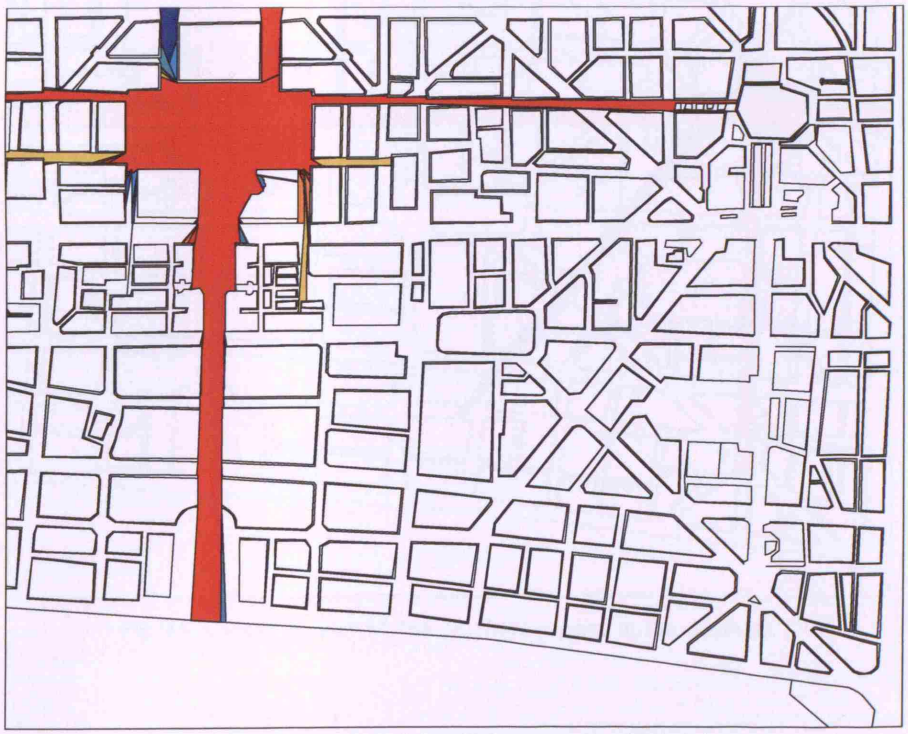

Fig. 63. Convex isovist of the Civic square in Aristotelous.

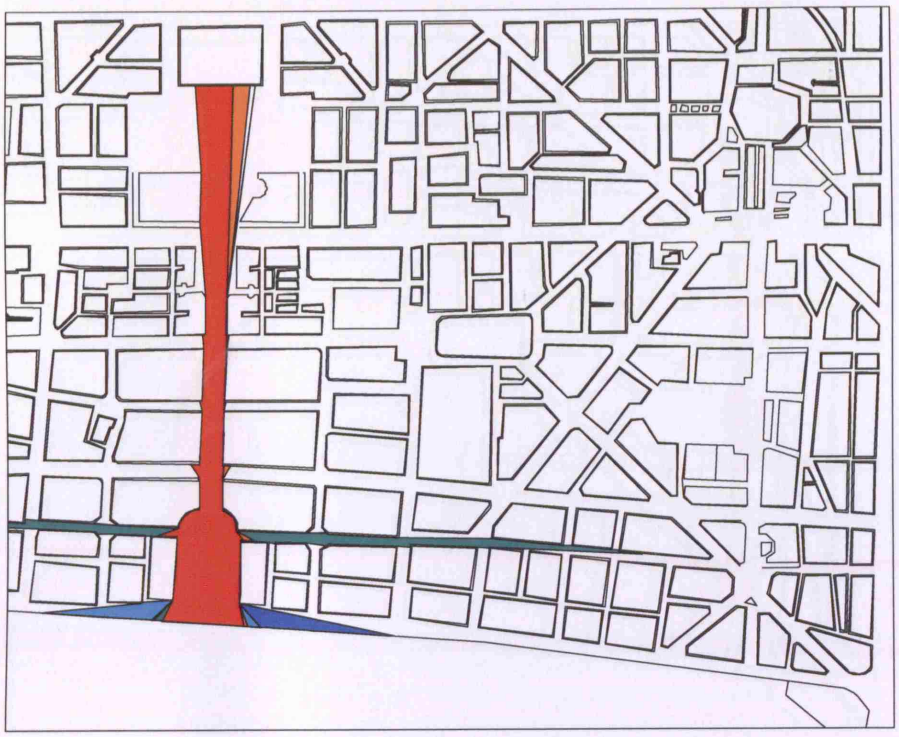

Fig. 64. Convex isovist of the southern square in Aristotelous.

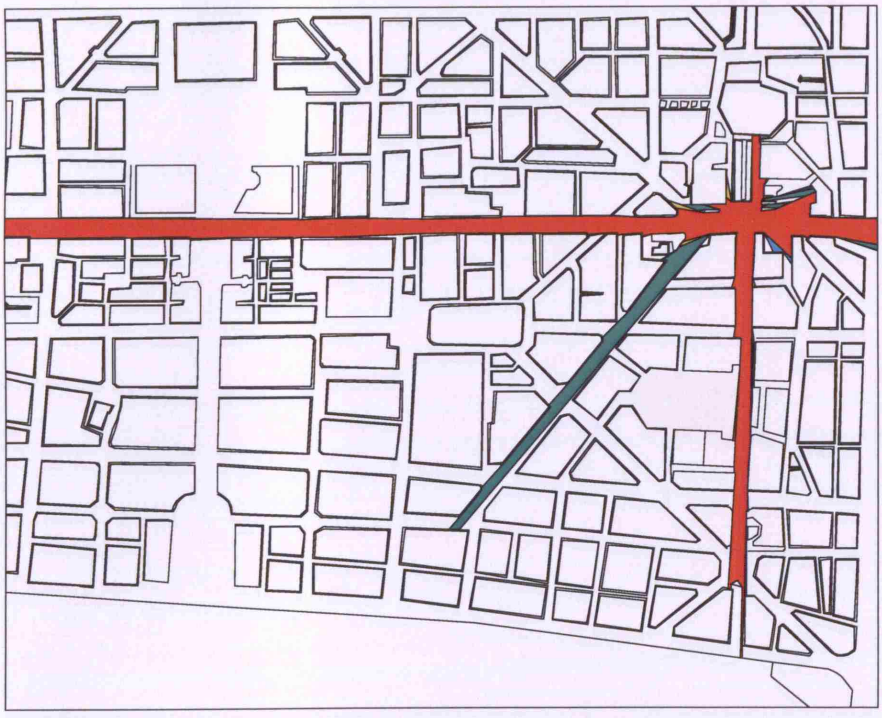

Fig. 65. Convex isovist of the northern square in Dim. Gounari.

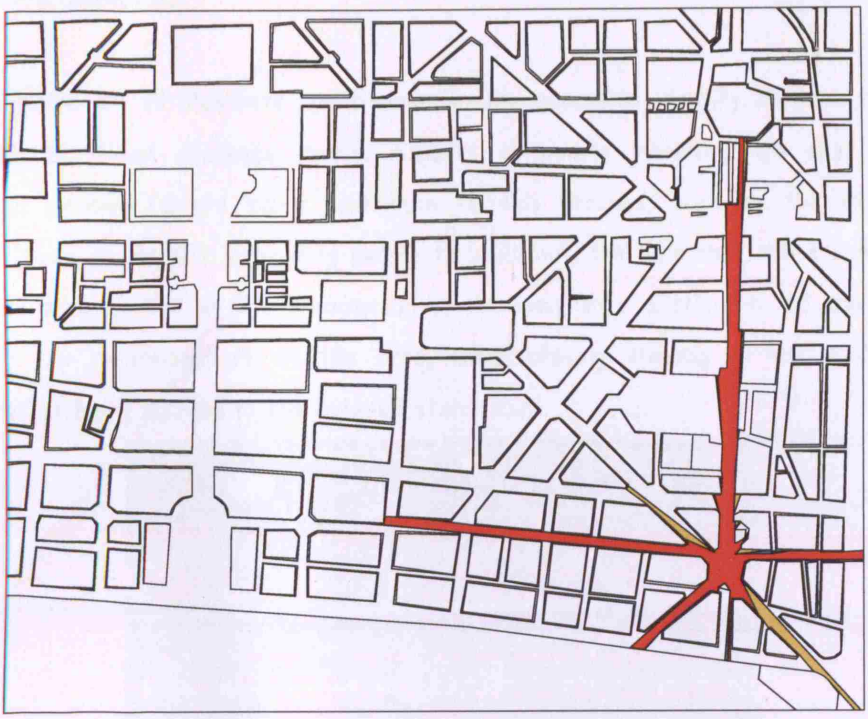

Fig. 66. Convex isovist of the southern square in Dim. Gounari.

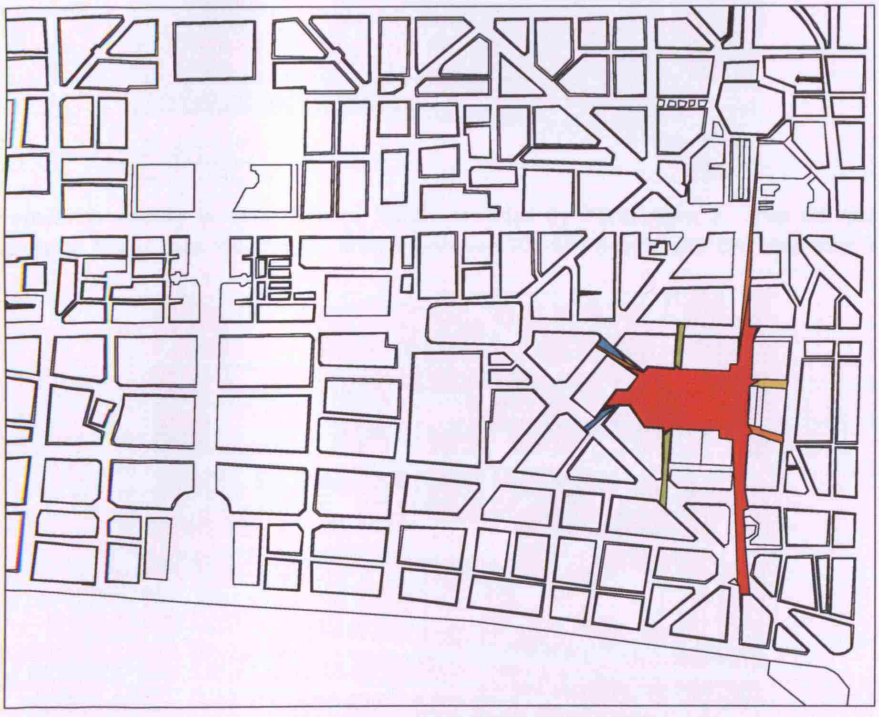

Fig. 67. Convex isovist of the middle part in Dim. Gounari.

Figures 68, 69 illustrate the changes in the population density between the years 1994-2008. Significant decrease in the numbers of people inhabiting the city centre is presented. Various factors could contribute to this process, such as the increase of pollution levels in the city motivating people to move out, the fact that office uses replace residential ones, as well as the phenomenon of the immigrants' settling in and appropriating, especially the northern part of the area, while staying illegally in the country (and therefore not being counted in the national statistics).

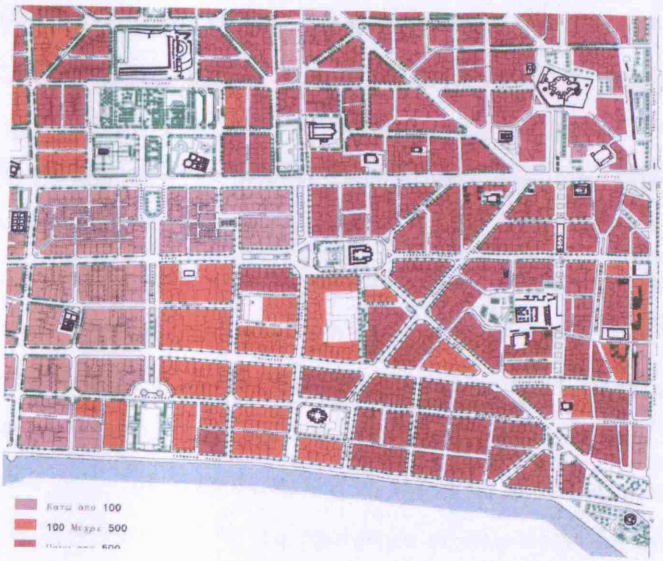

Fig. 68. Population density in 1994. Source: Kindly provided by Yerolumpos A. from her personal file. Purple signifying fewer than 100 people, orange between 100-500 people and dark red over 500 people.

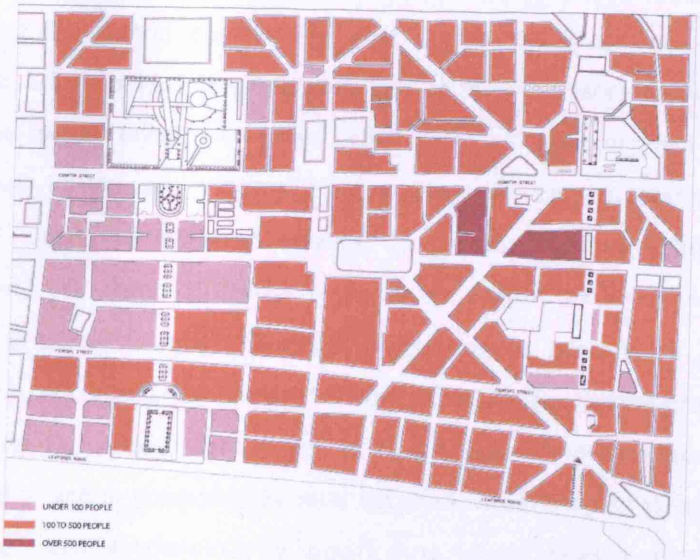

Fig. 69. Population density in 2008. Source: Statistical Company of Thessaloniki. Purple signifying fewer than 100 people, orange between 100-500 people and dark red over 500 people.

Chapter VI CONCLUSIONS

Aim of the study was to examine the spatial and social interrelationship of both study areas in the context of Thessaloniki. The structure of the report followed the lines of enquiry set at the beginning of the paper to answer the three research questions.

Initially, the first question concerning the circumstances that dictated the evolutionary process of the city centre and specifically the spatial transformation of Aristotelous and Dimitriou Gounari streets over time refers generally to the analysis of the structure of the city and specifically to both study areas. The evolutionary process of Thessaloniki was often interrupted due to common fires destroying its urban fabric and therefore planners transforming its spatial form. During the year 1917 though, the city's centre was totally devastated by a fire, resulting to the whole replanning of the area by Hebrard and the Commission. They generally changed the form of its urban layout but also sustained the spatial configuration of the main arteries of the city. Comparing the historical and present map of the city, it seems that the more integrated streets kept their values while the integration core spreads around the whole area, resulting from the coexistence of older parts within the grid. The transformation of the area resulted in the creation of new spatial forms that in their turn led to the emergence of new social behaviours and patterns of existence.

Concerning the second question, to what degree are the study areas interrelated and fit into their urban context and how does this relation influence and is affected by the city's urban and social layout, it seems that both of them present differences and similarities in their spatial and social attributes. They can be characterised as multiethnic and multicultural places, to different extents though, due to their spatial configurations. Land use, movement and static occupation patterns are shaped according to the urban layout of the streets affecting peoples' behaviours. Aristotelous presents a more formal and monumental character, attracting mostly offices, commercial, recreational and especially ethnic land uses on its northern part, compared to Dim. Gounari which is more informal, has a residential character and is dominated by local retail services and recreational activities. The number of people using Aristotelous is significantly larger than in Dim. Gounari, with a concentration of immigrants along them. Russians cluster in the Civic Square where their commercial activities blossom and residences are located while in Dim. Gounari they mostly

settle in the Navarinou square to create encounters. Tourists follow paths that lead them to the historical parts of the city wandering around both streets due to the existence of various monuments. The rest of the immigrants appropriate mostly spaces with advanced recreational or retail activities, to take advantage of the high movement locations in order to sell their illegal products.

Both streets seem to define to a certain extent peoples' movement and behaviour in different ways. For the study to be consistent, it should be taken into account the fact that different ethnicities present their own culture, habits and needs resulting to their individual appropriation of space and specifically of both areas.

The third question refers to the role of the urban environment in the formation of different occupational patterns between the study areas. Different static occupation patterns appear along both streets signifying the different effect of space on humans.

Initially, the Civic Square enhances static activity accommodating Russians and Gypsies of the working class, with the first group occupying the benches while the latter the green parts of the area. It seems that the square constitutes a place of centrality, being connected to the strongest integrator of the city. The southern square of Aristotelous is occupied only along its edges with the centre being used only for movement, due to the absence of urban furniture and the wide visibility views that expose people to common view while standing in the centre. Immigrants, especially Africans and Asians, appropriate the square to exchange products and interact with each other. The axis of the Aristotelous accommodates both movement and static occupation by various groups of people, connecting both squares and creating a passage for local and global movement patterns, constituting it a place of transition.

The northern square of Dim. Gounari sustains its historical character transforming it to a place of encounter for different groups of people. Locals, immigrants and tourists move and inhabit space in various ways. The square is located adjacent to the main integrator of the city, being easily accessed and identified. The public space has embodied the ancient ruins and monuments creating a particular atmosphere which acts as a strong attractor for all sorts of people. Navarinou square presents a more localised character, cut off from the main visibility views, with Russians occupying its benches and locals spreading in the cafes

and bars around it. The main axis of the street is a place of transition and static occupation, consisting of ancient ruins along its length and accommodating locals and immigrants, who socialise there. The area is well connected to its surroundings and well integrated with the historic monuments of the city, resulting in its special character and atmosphere.

To conclude, this two-way relation of space to society and society to space is being established in the present case study. The transformation of space through time affected land use, movement and occupation patterns in both areas differentiating them to a significant extent, simultaneously though, these patterns influencing the shape of the both streets. Aristotelous with its monumentality, rigid and formal layout, being well connected to the main integrators of the city, enhances concentration of offices, community and recreational services attracting mostly movement patterns along its axis and immigrants' static activity in the Civic Square. People in their turn affect the evolution of space with their movement and concentration in specific places, as for instance the development of immigrants' land use activities around the Civic Square due to their clustering in the area. Moreover, concentration of offices, community services and national retail activities is recorded due to the high number of people moving through the axis and therefore having easy access to them.

Accordingly, Dim. Gounari street presents a more informal character with its colourful building facades while embodying ancient monuments and ruins along its axis, referring to the history of the city. Residences, local retail and recreational activities are the dominant uses while movement and occupational patterns coexist along the street. Immigrants occupy mostly the Navarinou square but also disperse throughout the area. Young peoples' existence in the area affects further concentration of land use patterns, such as local retail and recreation. Co-presence of locals and immigrants is recorded throughout the area, enhancing the multicultural character of the place and its evolution as an attractive pole creating no discriminations among its users.

Finally, it is imperative that planners organising any future development in the area, to fully comprehend the spatial and social character of the place in order to successfully embed any transformation within the existing urban fabric.

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